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AGRICULTURE CANADA'S INPUT-OUTPUT MODEL PART I: DISAGGREGATION OF THE AGRICULTURE SECTOR

(Working Paper 6/87)

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AGRICULTURE CANADA'S INPUT-OUTPUT MODEL
PART I:
DISAGGREGATION OF THE AGRICULTURE SECTOR

(Working Paper 6/87)

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This report is distributed as a working paper for those interested in Canadian agriculture. The findings and views do not necessarily represent the position of Agriculture Canada.

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I. INTRODUCTION

Currently, the best known and mostly widely used input-output model within Canada is the National Model developed and maintained by Statistics Canada. This model represents agriculture as a single industrial sector. Having a single sector for agriculture limits the model's usefulness for analyzing policy changes affecting any one type of production in the agriculture sector. Disaggregation of the agriculture sector would make the model more responsive to the types of policy changes which affect the agricultural industry complex. Such a disaggregated model would permit an assessment of the total impact on the economy of a change in policy directed at any of the agriculture sectors incorporated into the model.

The development of the disaggregated agriculture sector input-output model was a joint effort between the Marketing and Economics and Regional Development Branches of Agriculture Canada. Both branches had similar interests in the development of a disaggregated input-output model; however, each placed slightly different emphasis on the applications of the completed framework. Marketing and Economics sought to analyze impacts from a National perspective. Regional Development, while also interested in national analysis, was interested in differentiating regional impacts on agriculture. With the recent reorganization of the Department, the model is now being developed and applied by the newly established Policy Branch.

The first stage of model development had the following objectives:

1. To disaggregate the agriculture industrial sector in the present Statistics Canada National Input-Output Model into a number of sectors. The disaggregation was to be based on farm type information.

2. To provide a working input-output model with a disaggregated agriculture sector at the national level for Canada.

The second stage of the project is the development of an interprovincial input-output model with disaggregated agriculture sectors.

This working paper provides a discussion of the data sources and methods which were used to complete the first stage of model development. Section 1 outlines the accounting framework which is the basis of the input-output model. This section reviews the matrices needed to develop the model, the manipulation of these matrices and the assumptions underlying the model. Section 2 details the redesign of the agriculture sector and the commodities and industries included in the model. The third section outlines the methods and data sources used to disaggregate the agriculture sector in the Use Matrix. The disaggregation of the agriculture sector in the Make Matrix is found in the fourth section. The final section of this working paper reviews the other coefficients used in the model and an application of the model in a sample situation.

1.1 Input-Output Models

An input-output model (I-O model) is a general equilibrium model of an economy which can be used to estimate the direct, indirect, and induced effects of a change in the final demand for commodities produced by the economy. This is one of the few techniques which allows the analyst to move away from a partial equilibrium framework when doing his or her analysis. The advantage which I-O models have over other forms of policy analysis is that they possess the capability of estimating the total effect on the economy of different policies among different industries. The Input-Output framework details the linkages between the primary and secondary sectors within agriculture and between agriculture and the rest of the economy. This characteristic is particularly useful when designing policies which have implications throughout interrelated agricultural commodity markets.

The accounting framework used in the model is the rectangular format of commodities and industries. This accounting procedure differs from the traditional square format of industries by industries which is used in most U.S. models. The advantages of the rectangular format are:

(1) it allows greater detail in the accounting framework for the various data sources which are used in the creation of the model,

(2) it provides an easier interpretation of entries made in the accounting framework.

The accounting framework describes the supply and disposition of commodities in the economy during a specific time period. The tables detail in value terms the inputs and outputs of each industry on a commodity basis.

1.2 The Accounting Framework

Input-Output models are based on an accounting framework which documents the flow of commodities used in the production process, the consumption of commodities by final demand categories and the output of commodities produced by the industrial sectors in the economy. This framework documents the supply and disposition of commodities in the economy and is composed of five matrices (figure 1).

I) the intermediate input matrix by industry U
II) the primary input matrix by industry YI
III) the make or output matrix V
IV) the final demand matrix F
V) the primary inputs going into final demand YF

Figure 1. The Input-Output Tableau

	Commodities	Industries	Final demand	Total
COM.		U	F	q
IND.	V			g
PRIMARY INPUTS		YI	YF	
TOTAL	q'	g'		

Where:
- NC = number of commodities.
- NI = number of industries.
- NY = number of primary inputs.
- NF = number of final demand categories.
- V = is a NI * NC order matrix showing the value of gross domestic output of industries by commodities.
- U = is a NC * NI order matrix showing the value of commodities used by industries as current inputs.
- F = is a NC * NF order matrix showing the value of commodities used by the final demand categories.
- YI = is a NY * NI order matrix showing the value of primary inputs used by industries.
- YF = is a NY * NF order matrix showing the value of primary inputs used in final demand categories.
- q = is a NC * 1 vector which shows the values of total commodity outputs.
- g = is a NI * 1 vector which shows the values of total industrial outputs.

The Use matrix contains all of the intermediate plus primary inputs (matrix U and YI) used by the industries to produce their outputs. This is called the intermediate demand for goods (i.e. the value of goods used in the production process). The vector g' represents the total cost of producing each industry's output in the economy. Reading across any row in this matrix provides an estimate of the value of a commodity used as an intermediate or primary input in the production process for each industry.

The Make or V matrix accounts for the value of goods produced by each industry in the economy. The value of each commodity produced by the industries can be found in the columns of this matrix. The vector q' provides an estimate of the total value of each commodity produced in the economy. Reading across any row will account for the value of each commodity produced by an industrial sector. In the input-output accounting framework the total cost of an industry's production has to be equal to the total value of the products produced by that industry. This means that vector g is equal to g'. Similarly, the total demand for commodities, both intermediate and final demand use, is equal to the total supply of commodities; q=q'.

The accounting framework measures the value of commodities in producer prices. Producer prices are the price of a commodity at the boundary of the producing establishment. These prices differ from the more commonly found purchaser prices because they do not include margins for wholesale and retail trade, transportation, storage, or commodity taxes. Each of these margins is placed in the model as a separate row or column in the accounting framework.

Notation:

The following notation will be used for the model derivation.

' : indicates transposition. (unprimed vectors are considered column vectors).

^ : indicates diagonalization.

i : is a vector whose elements are all equal to unity. These vectors are used to accomplish matrix row and column summation: (ie. i'X is a vector of the column sums of X. Xi is a vector of the row sums of X. The length of the vector is assumed to be consistent with the matrix which the operation is being performed.

1.3 Manipulation of the Accounting Framework

The accounting framework provides a number of relationships which can be used to estimate the total impact on the economy of a change in demand for the goods produced in the economy. The first relationship outlines the disposition of commodities by industries in the processing process or by categories of final demand.

(1)	The Value of Total Commodity	=	Value of Intermediate Demand for Commodities	+	Value of Final Demand For Outputs Commodities	
	q	=	Ui	+	Fi	

The second relationship outlines the domestic supply of commodities by industry.

(2) The Total Value of Industrial Outputs = The Summation of the Value of the Industrial Outputs by Commodity

$$g = Vi$$

Taking these two relationships and making a number of assumptions, the accounting framework can be used to provide an estimate of the total impact of changes in the demand for commodities in the economy. The model makes two assumptions about the industrial technology or industrial processes used in the economy. The first is that the current intermediate inputs into each industry are proportional to the output produced by that industry. In matrix notation:

(3) $U = B\hat{g}$ Where: B is a NC * NI matrix of technical coefficients.

The second industry technology assumption assumes that the primary inputs into each industry are proportional to the output of that industry. In matrix notation:

(4) $YI = H\hat{g}$ Where: H is a NY * NI matrix.

The model also assumes that the demand for domestically produced commodities is allocated among industries according to fixed market shares. This can be defined by:

(5) $V = D\hat{q}$ Where: D is a NI * NC matrix of market share coefficients.

Using these relationships a model can be developed which will estimate the direct and indirect impact of changes in the final demand for commodities in that economy.

From equation (1) $q = Ui + Fi$

Substituting for U, equation (3):

(6) $q = Bg + Fi$ (note: $Ui = Bg$)

Substituting for g, equation (2):

(7) $q = BVi + Fi$

Substituting for Vi, equation (5):

(8) $q = BDq + Fi$

(9) $q - BDq = Fi$

(10) $q = (I-BD)^{-1}Fi$ Where: I is a NC * NC identity matrix.

Equation 10 estimates the direct and indirect impact on the economy of a change in final demand. The estimates are in terms of the value of commodity output which would have to be produced in order to satisfy the final demand.

The above result, while being important, does not provide an estimate of the industrial sector output needed to satisfy the final demand. This type of estimate would provide a much more useful estimate of the impact of the final demand vector since this is the information which is generally more available in a macroeconomic sense in order to place the impact into a context which would be useful to the decision-maker. To estimate the industrial sector impacts:

equation (2): $g = Vi$

Substituting for Vi, equation (5):

(11) $g = Dq$

Substituting for q, equation (1):

(12) $g = D (Ui + Fi)$

Substituting for U, equation (3):

(13) $g = D (Bg + Fi)$

Rewriting:

(14) $g = DBg + DFi$

(15) $g - DBg = DFi$

(16) $g = (I-DB)^{-1} DFi$ Where: I is a NI * NI identity matrix.

Equation 16 provides an estimate of the industrial sector's output needed to satisfy the final demand.

1.4 Leakages in the Economy

In the above development of the model, the final demand for commodities is treated as a single matrix. This matrix can be disaggregated into a number of sectors.

(17) $F = f + E + X - M - A - N$

where:

f = is a NC * 1 vector of the values of final demand excluding exports, re-exports, imports, government production and withdrawals from inventory.

E = is a NC * 1 vector of the value of re-exports.

X = is a NC * 1 vector of the value of commodity exports.

M = is a NC * 1 vector of the value of commodity mports.

A = is a NC * 1 vector of the value of government production of commodities.

N= is a NC * 1 vector of the value of inventory withdrawals.

Leakages in the economy will occur when imports, government production, and inventory withdrawals are used to supply commodities into the intermediate inputs and final demand of the economy. In order to take these leakages into account the following assumption was made: that the amount of commodity imports, government production, and withdrawals from inventories are a fixed proportion of the domestic commodities demanded. Putting this assumption into matrix notation:

(18) $M = \hat{P}(Bg + f + E)$
(19) $N = \hat{J}(Bg + f + X)$
(20) $A = \hat{T}(Bg + f + X)$

where:

$\hat{P}$ = is a NC * NC diagonal matrix of coefficients whose elements are a ratio of imports to commodity use.

$\hat{J}$ = is a NC * NC diagonal matrix of coefficients whose elements are a ratio of inventory withdrawals to commodity use.

$\hat{T}$ = is a NC * NC diagonal matrix of coefficients whose elements are a ratio of government production to commodity use.

It should be noted that the commodity use is defined by the terms in the bracket.

It is now possible to determine the commodity and industry impacts of changes in the demand for commodities produced in the economy taking into account the leakages which occur. The commodity impacts would be derived as follows:

From equation (6) $q = Bg + Fi$

Substituting for F, equation (17)

(21) $q = Bg + f + E + X - M - N - A$

Substituting for M, N, and A, with equations (18), (19), and (20)

$$(22)\quad q = Bg + f + E + X - \hat{P}(Bg+f+E) - \hat{J}(Bg+f+X) - \hat{T}(Bg+f+X)$$

Rewriting and substituting for g, with equation (11)

$$(23)\quad q - BDq + \hat{P}BDq + \hat{J}BDq + \hat{T}BDq = (I-\hat{P}-\hat{J}-\hat{T})f + (I-\hat{P})E + (I-\hat{J}-\hat{T})X$$

$$(24)\quad [I - (I-\hat{P}-\hat{J}-\hat{T})BD]q = (I-\hat{P}-\hat{J}-\hat{T})f + (I-\hat{P})E + (I-\hat{J}-\hat{T})X$$

$$(25)\quad q = [I - (I-\hat{P}-\hat{J}-\hat{T})BD]^{-1} [(I-\hat{P}-\hat{J}-\hat{T})f + (I-\hat{P})E + (I-\hat{J}-\hat{T})X]$$

Equation 25 provides the estimate of commodity output which would be required to satisfy the final demand specified for the economy.

To determine the industry impacts:

From equation (11), $g = Dq$

Substituting for q, equation (22)

$$(27)\quad g = D[Bg + f + E + X - \hat{P}(Bg+f+E) - \hat{J}(Bg+f+X) - \hat{T}(Bg+f+X)]$$

Rewriting:

$$(28)\quad g - DBg + D\hat{P}Bg + D\hat{J}Bg + D\hat{T}Bg = D[(I-\hat{P}-\hat{J}-\hat{T})f + (I-\hat{P})E + (I-\hat{J}-\hat{T})X]$$

$$(29)\quad [I- D(I-\hat{P}-\hat{J}-\hat{T})B]g = D[(I-\hat{P}-\hat{J}-\hat{T})f + (I-\hat{P})E + (I-\hat{J}-\hat{T})X]$$

$$(30)\quad g = [I- D(I-\hat{P}-\hat{J}-\hat{T})B]^{-1} D[(I-\hat{P}-\hat{J}-\hat{T})f + (I-\hat{P})E + (I-\hat{J}-\hat{T})X]$$

Equation 30 estimates the industrial output which would be required to satisfy the final demand specified for the economy.

1.5 Input-Output Assumptions and Their Implications

Prior to going into the disaggregation of the agriculture sector in the model a quick review of the model's assumptions and the implications of these assumptions on the model's results is in order.

One of the major assumptions of the model deals with the industrial technology used in the model. As noted by Gigantes, an input-output model can be developed with either industrial technology or commodity technology. The industrial technology assumes that the inputs going into the industrial production are the same irrespective of the outputs being produced. The commodity technology assumption implies that each commodity has a specific input structure and the industrial sectors are linear combinations of the input structures of the commodities which they produce. The assumption used in the present model is that of industrial technology. It is important to realize that this assumes that production technology does not change irrespective of the demand for that industry's output. Along with this, it is assumed that the relative prices of inputs remain the same and that there is no substitution of inputs as prices change. Finally, it is assumed that there are no constraints on the supply of inputs to satisfy the final demand.

The second major assumption is that the market share of commodity output is fixed among industries. This implies that as the final demand for a commodity increases, the output of that commodity will be produced by those industries in their appropriate market share proportions.

When taking into account the leakages in the economy, it is assumed that the industrial sector will use a fixed proportion of leakages (i.e. imports, government production and inventory adjustments) in their production process. This implies that the purchasing patterns of firms do not change between foreign and domestic suppliers. Similarly on the demand side, it is assumed that these leakages will occur in fixed proportions.

As was mentioned earlier, the model is a general equilibrium model. The model assumes that the economy is in equilibrium prior to any changes in final demand and the estimated impacts which the model gives are the results of a change in final demand once the economy has again returned to equilibrium. There is no timeframe in which this new equilibrium position is assumed to occur and therefore it is not possible to determine how long it will take to arrive at this new equilibrium position. Furthermore, it is not possible to determine disequilibrium solutions to the model.

It is further assumed that each industrial sector is well defined and represents all the industries contained in that sector. This is an important assumption because as the outputs of any one sector changes, the necessary inputs for that sector have to be identified and their outputs have to be adjusted correctly as the indirect effects work through the model. The reason for the disaggregation of the agricultural sector was to address this question of industrial sector representation when looking at agricultural policy questions. A single agricultural sector does not adequately reflect the industrial structure necessary to do agricultural policy analysis with respect to the needs and interest of Agriculture Canada.

Finally, when estimating the induced effects on the economy brought about by consumer purchases a simplified assumption had to be made. The model assumes that the household sectors average propensity to consume is equal to its marginal propensity to consume. This will result in an overestimation of the induced effects since the marginal propensity to consume will be less than the average propensity to consume.

1.6 Summary

The input-output model is based on the accounting framework for the economy which is being modelled. The model which has been developed is for the Canadian economy for the year 1981. This model is a modification of the most up to date version of the Nation Input-Output Model developed by Statistics Canada. The model has been modified by disaggregating the existing agriculture sector into a number of sectors in order to enhance the models ability to estimate the impact of policy changes which effect the final demand for agriculture and agricultural related products. This modification required the estimation of the accounting framework for the new agricultural sectors (i.e. the Make and Use matrices). The remaining sections of the documentation will review the design of the new agricultural sectors, the data sources used in the disaggregation and the values used in the Use and Make matrices.

II. DISAGGREGATION OF THE NATIONAL I-O MODEL

The development of the Agriculture Canada model required the design of an expanded agriculture sector. Section 2.1 will review the fundamental definitions which were used to redesign this sector. This section reviews the alternative technology ssumptions which could of been used in the model and the reasons why the industrial technology was chosen. Section 2.2 reviews the commodities and industries which are found in the model. The definitions and description of the twelve agricultural sectors are given. The available data sources are reviewed in Section 2.3. Each of these data sources are evaluated for their possible use in this and future input-output models developed by Agriculture Canada. Finally, Section 2.4 outlines the data sources which were used to develop the present model.

2.1 Redesign of the Agriculture Sector

The design and development of a disaggregated National I-O Model of Canadian Agriculture (Agriculture Canada Model) involved many interrelated steps and the cooperation of Statistics Canada, Input-Output Division staff, on whose national model of the Canadian economy, the disaggregated model is based. The Agriculture Canada Model retains the same commodity and industry structure as the Statistics Canada Model. The commodity and industry structure is based on the Standard Industrial Classification (SIC) and Standard Commodity Codes (SCC) developed by Statistics Canada.

The structure and definitions of the disaggregated agriculture sector depends upon the conceptual framework which the model is intended to describe. This fundamental design decision depends upon three key definitions:

Establishment: The smallest unit of production operating as a separate operating entity, capable of reporting all elements of basic industrial statistics.

Industry: Establishments engaged in the same or similar types of economic activities.

Activity: Activities are associated with single industries or single establishments which produce more than one commodity or group of commodities whose output patterns are different.

The structure of the agriculture sector will depend on the industrial or activity framework chosen. The industrial structure uses an industry technology assumption in order to allocate the inputs to the agriculture sectors specified. In this case, each farm would be an establishment and the industry would be defined as the collection of similar farm types. Each such industry would have an industrial structure which would represent the inputs required to produce its output.

The use of an activities framework to model the agriculture sector would require the division of the agriculture sector into a number of activities. Each activity would have its own input structure. This input structure could be developed on a commodity technology basis or further divided into an activity by farm type basis. The problem with using the activities framework with commodity technology occurs with the allocation of

the primary inputs to the specific activities. This is because the allocation of these inputs are usually based on an establishment. The difficulty of using an activity by farm type technology occurs with the number of input estimates which would have to be made. Since this information does not exist at the present time, it was decided to use an industrial structure assuming an industry technology.

Each of the primary agriculture industries found in the industrial structure corresponds to a separate farm type defined in the 1981 Census of Agriculture. There are twelve of these farm types in the disaggregated model, each capable of producing one or more commodities contained in the rectangular accounting framework. The commodity-by-industry framework conforms with the specification used to define the other sectors of the Canadian economy according to the SIC system. Another attractive feature of this framework, is that fewer coefficients in the model have to be estimated from non-published sources, since industry-wide data values could be used as "representative" of revenue and expenditure patterns for a group of establishments.

The Agriculture Canada Model uses the large aggregation structure of the Statistics Canada Model and has the following general characteristics:

1. The current agriculture sector (single industry) in the Statistics Canada model is replaced by 12 farm types, corresponding to the farm type definitions used in the 1981 Census of Agriculture.

2. All agricultural processing/manufacturing industries in the Statistics Canada Large aggregation are retained in the disaggregated model.

3. All other industrial and commodity definitions within the National I-O model remain the same. Thus the overall matrix size in the revised model becomes 595 commodities by 202 industries. This size affords the maximum disaggregation of primary and secondary agricultural activity, while maintaining consistency of definitions for both commodities and industries between both models.

2.2 Industry and Commodity Definitions

The farm type categories used to disaggregate the agriculture sector were based upon the farm types outlined in the 1981 Census of Agriculture. There are twelve farm type sectors in the model which are outlined in Table 2.1. Each of the farm types are defined by the source of income which amounts to 51 percent or more of their income from a particular agriculture activity. A list of the remaining 190 industrial sectors in the model can be found in Appendix 2.1.

The commodities used in the model are the same as those used in the Statistics Canada Model. There are 602 commodities of which 97 are agriculture related. A list of the commodities in the model can be found in Appendix 2.2. A more detailed definition of each commodity can be found in the Standard Commodity Classification.

Table 2.1
FARM TYPE CATEGORIES & CORRESPONDING COMMODITIES

Farm Types	Kinds of Products Produced	
1. Dairy	Dairy	
2. Cattle	Cattle (ex.Dairy)	
3. Hogs	Hogs	
4. Poultry	Poultry	
5. Wheat	Spring Wheat	
	Winter Wheat	
	Durum Wheat	
6. Small Grains	Oats	Buckwheat
	Barley	Corn for Grain
	Rye	Soybeans
	Mixed Grains	Mustard Seed
7. Field Crops	Forage Seed	Tobacco
	Potatoes	Sugar Beets
8. Fruits & Vegetables	Fruits	Vegetables
9. Miscellaneous Specialty	Sheep	Greenhouses
	Horses	Beeswax
	Honey	Nursery Products
10.Livestock Combinations	Combinations of Dairy, Cattle, Hogs, Sheep, Poultry Production	
11. Field Crop Combinations	Combinations of the Field Crops mentioned above.	
12. Other Combinations	A Residual Group	

Note: The definition of the respective farm types was based on the source of income amounting to 51% or more of total income coming from particular agriculture activity.

2.3 Available Data Sources

The development of a disaggregated agriculture sector in the input-output model is a very data intensive operation. Input and outputs for each of the farm types had to be identified and allocated to the appropriate farm types. This data requirement entailed a thorough review of available data sources in order to estimate their usefulness for input-output purposes. Outlined below are the advantages and disadvantages for each of the major data sources as it relates to the development, maintenance and updating of the disaggregated input-output model. The characteristics are presented in order to identify the relative strengths and weaknesses of each data source.

1. Agriculture Census

Advantage:

i) The 1981 Agriculture Census provides detailed farm expenditures for selected items by farm type for each province.

ii) The census provides a complete sample of the total farm population.

iii) The census provides an estimate of the revenue by farm type for each province.

Disadvantages:

i) Additional processing required to disaggregate the present twelve farm types. The maximum number of farm types from this source is thirty. A user fee is charged for increasing the number of farm types.

ii) Total expenditures are not available by type of farm or by province.

iii) Values which have been suppressed for reasons of confidentially have to be estimated.

iv) Farm types have been imputed using a method which estimates the revenue of a farm by estimating the commodities produced and the price received for those commodities.

Timeframe:

It usually takes approximately 1.5 years to publish the information after the census has been completed.

Model Size:

The number of possible sectors would range from 12 to 30 sectors, with the most likely size being 14 agriculture sectors.

2. National Farm Survey

Advantages:

i) The National Farm Survey is a sample survey of farmers which is done yearly. The sample collects information on all expense items and total revenue.

ii) The survey provides an estimate of total expenditures by item and total revenue by province.

iii) The survey lends itself to the imputation of farm type based on value coefficients applied to acreages and livestock inventories. This farm type disaggregation has already been conducted on the 1983 NFS (1982 data).

iv) This source will be the only estimate of total revenue and total expenditures by item in the Prairie Provinces after 1984.

Disadvantages:

i) The expenditure part of the National Farm Survey will be discontinued in 1985 for all provinces except the Prairie Provinces.

ii) The National Farm Survey estimate of net farm income by farm type is significantly different from the published series produced by Statistics Canada.

iii) The reconciliation of this data with the published series is an involved process which would require Statistics Canada's attention. If Statistics Canada can not reconcile the data then the data would probably not be released.

Timeframe:

Information from the NFS would be available within a year after the survey was conducted.

Model Size:

The number of sectors would range from 14 to 18 agriculture sectors, with the most likely size being 16 sectors.

3. Published Series on Farm Expenditures and Receipts

Advantages:

i) This series provides total expenditure estimates by item for agriculture on a per province basis. It also supplies an estimate of total receipts by item.

ii) It is the basis for determining net farm income.

iii) The series is published on a yearly basis.

Disadvantages:

i) This series is not disaggregated by farm type.

ii) The revenue estimates are determined by either a price times quantity formulation or other institutional information.

iii) The expense and revenue estimates do not measure inter-farm transfers within a province.

iv) Some of the expenditure and revenue estimates are net estimates as opposed to gross estimates as reported in other sources.

v) The interest and depreciation estimates are determined through formulation.

Timeframe:

Preliminary estimates are available by May of the following calendar year. Revised estimates are published 18 months after the calendar year in question.

Model Size:

The number of agriculture sectors would be limited to 12.

4. Taxfiler Information

Advantages:

i) This source provides a complete expense and revenue profile for the unincorporated farm sector.

ii) This series will be available for two years, starting in 1985, for specific regions in Canada (B.C., Ontario, Quebec and the Maritimes).

iii) This source lends itself to the disaggregation of the data by farm type.

Disadvantages:

i) This source does not include the corporate farm sector.

ii) This source does not collect data on the whole country (all provinces except the Prairies).

iii) Differences occur between the value of expenditures and revenue found in this survey and that of the published sources. The reconciliation of the two series requires Statistics Canada's attention. The farm type estimates may not be released if the reconciliation can not be made.

iv) The sample size of the taxfiler returns may limit farm type disaggregation after the first two years of the series.

Timeframe:

It is estimated to take 15 months to obtain the data after the calendar year in question.

Model Size:

The number of agriculture sectors could range from 12 to 30, with the most probable size being 16 sectors.

The data source selection depended primarily on the availability of farm type statistics. A number of sources, National Farm Survey and the Taxfiler Data, have been used internally at Statistics Canada for the development of farm type statistics. However, due to problems with the reconciliation of these sources with other published expenditure and revenue data, these sources are not readily available at this time. Given the project timeframe, a decision was made to use the 1981 Census as the major data source. This source provided for a consistent database for both expenses and revenue by farm type for the major input and output commodities in the model.

The best long term source of information for input-output modelling purposes will most likely be the taxfiler database if a number of problems can be overcome. The first is the reconciliation of the data with other published sources. The second will be a means of estimating the expense and revenue patterns of the corporate farm sector. Finally, the sample size needed to make an accurate farm type estimate will have to be determined and continuously collected.

If the problems with the taxfiler database cannot be overcome then the Census is the best long term data source. If this becomes the case then a number of additions to the Census questionnaire would be helpful. These would include an estimate of total farm expenditures and an estimate of the revenue received by commodity from the year in which the expenses occurred. This would increase the usefulness of this data for input-output modelling purposes.

2.4 Data Selection

The Statistics Canada Model which was purchased from the Input-Output Division contained data for the agriculture industrial sector in both the Make and Use matrices. The information in these matrices were from the nonconfidential accounting tables. The difference between the nonconfidential and confidential data sources was $1 million for the agriculture industry. The confidential estimates had been suppressed in the Use matrix by using an accounting row; 603. The confidential values amounted to less than 0.01% of the total expenditures in agriculture.

In the original accounting data received from the Input-Output division the agriculture sector spent $18.7 billion on inputs going into the production of agricultural commodity outputs. This $18.7 billion was allocated to 86 input commodities in the Use matrix. Given the accounting relationships in the model, the agriculture sector produced $18.7 billion worth of output. This output was composed of 32 commodities.

In order to disaggregate the agriculture sector it was necessary to allocate these estimates to the twelve farm types. This was done using a variety of published and unpublished data sources. For the input expenditures the following data sources were the principle means of disaggregating the Use matrix:

1. Statistics Canada, Census of Agriculture, 1981, Table 30: Selected Expenditures by Farm Type.

2. Statistics Canada, Agriculture-Population Linkage, Special Tabulation, Census of Agriculture, 1981.

3. Statistics Canada, Input-Output Division, Statistics provided on: Subsidies, Margins and Commodity Taxes.

4. Farm Budgets: Receipts, Expenses and Income by Type and Size of Farm, W.Darcovich and J.Gellner, Agriculture Canada Working Papers, 1974.

5. Farm Credit Corporation, Farm Survey, 1984, Special Tabulation of data concerning borrowings by farm type.

The 32 commodities in the Make matrix were also disaggregated by the twelve farm types. The major data sources involved in this disaggregation were:

1. Statistics Canada, Imputed Sales Classified by Product and Farm Type, Canada and Provinces, Farms with Sales of $2,500 or Over, Special Tabulation, 1981 Census.

2. Statistics Canada, Farming Facts 1984, Agriculture Statistics Division, Ottawa, 1984.

3. Statistics Canada, Census of Agriculture -- 1981 Canada, Catalogue Number 96-901, 1982.

A complete description of the data employed from each of these sources, together with the methodology and the commodity to which the methods were applied, is presented in Sections III and IV of this documentation.

III. METHODOLOGY TO DISAGGREGATE THE USE MATRIX

The development of the Agriculture Canada input-output model required the disaggregation of the Use and Make Matrices of the original model to take into consideration the expanded agriculture sectors. The expanded Use Matrix details the input expenditures made by each of the agriculture sectors modelled. Section 3.1 describes the procedure used to disaggregate the Use Matrix and reviews the data of the original single agricultural sector and outlines the commodity expenditures which predominated. Section 3.2 details the derivation of the farm type expenditure patterns. The three major data sources; 1981 Census of Agriculture, Taxfiler Farm Budgets and Other Data Sources, are used to disaggregate the farm type expenditures by identifying those commodities which are best described by a particular data source.

3.1 The Approach to Disaggregation

Once the commodity and industry framework for the model had been established, data from the Statistics Canada National Model was used as the basis for re-allocating the single-sector values for agriculture among the newly designated farm types in the disaggregated I-O tableau. Of the $18.7 billion spent on inputs into the agricultural sector in 1981, 24 commodities accounted for more than 90% of these costs. These commodities had expenditures of $100 million or more (Table 3.1). The remaining commodities were broken into two groups: those with expenditures of between $10 and less than $100 million and those with expenditures of less than $10 million. Considering the data and time limitations on the project, emphasis was placed on the disaggregation of the commodities which account for the greatest proportion of the expenses.

The data source which was used extensively in the disaggregation of the input-output model was the 1981 Census of Agriculture, since this is one of the few sources which allocates expenses by farm type. The same definition of farm type was used in our model as is found in the Census. It should be noted that the Census farm type designations are imputed designations which were determined through a price times quantity determination from other information collected in the Census. The Census information on expenditures are for the year 1980, and therefore, it was necessary to index the expenditure items to 1981.

The first step in the disaggregation of the agriculture sector was to compare the expense items which were found in the Census to similar items in the input-output table. If the Census total were comparable to the I-O values then it was assumed that the distribution of these expenditures by farm type were also correct. In order to make this comparison it was necessary to index the Census expense items to reflect 1981 prices and to change the input-output model producer's prices into purchaser's prices. Table 3.2 provides a comparison of the values found in both sources. The input-output values had to be aggregated in order to account for similar items in the Census source. As shown in the Table, the percentage difference between the two sources varied depending upon the item examined. For items such as: feed and supplements, fertilizers, machine rental and custom work, fuel, oil and lubrication, and electricity used; the difference was less than 12 percent between the two sources. These values accounted for 27 percent of the total

expenditures on agricultural inputs. The difference between the two sources for the following items were within 25 percent: seeds and seedlings, agriculture chemicals, and repair and maintenance of farm buildings and fences. The following items had totals greater than 25 percent: cash rent, cash wages, and repair and maintenance of farm machinery. The greatest discrepancy in this last group occurred in the cash rent item. This difference was decreased substantially when shared rent was also included into the total (i. e. to 17 percent). The problem with using the combination share rent and cash rent to describe other rent in the input-output model was due to the interpretation of shared rent on the Census for provinces east of Ontario. For these provinces, the share rent component was not recorded due to translation and other problems. This fact was thought to bias the combined distribution (i.e. share rent + cash rent) and therefore was not used.

It is important to note that differences between the input-output values and the Census values will occur for a number of reasons. First, it is assumed that the expenditure made in 1981 were not significantly different from those in 1980. Given this, it is assumed that the index number used accurately estimate the change in prices for expenditure items from 1980 to 1981. Second, the categories in the Census and the input-output model are not completely comparable. Differences may result due to classification problems. For example, a chemical which may be classified in the Census as an agricultural chemical could be classified as an "other chemical product" in the input-output model. Finally, errors may occur in the estimated margins for the commodities identified.

Once the Census and input-output totals were deemed comparable, the Census values were converted into a percentage distribution by farm type. For example, electricity use in the Census of Agriculture was indexed to 1981 values and converted to a percentage distribution by farm type. This distribution was then applied to the value of electric power in the Use matrix in the current National I-O model. This approach was applied to each of the 86 items in the Statistics Canada Use Matrix.

Data limitations prevented the application of specific distributions for each commodity as defined in the Use Matrix. Such cases required the use of the general Census expense category distribution to be used for a number of specific input-output expenditure items. For example, fuel, oil and lubrication represented a single expense item in the Census. However, this distribution was applied to the individual commodities in the Use Matrix for motor gasoline, fuel oil and lubricating oils-greases. This approach implies that each of these three input items are employed in the same proportion amongst the twelve farm types in the disaggregated model.

3.2 Derivation of Farm Type Expenditure Patterns

A complete listing of the 86 commodities utilized by agricultural industries as inputs in the production process is provided in Appendix Table A-3.1. In this table each commodity is itemized and the corresponding distribution of the expenditures by farm type is shown. These percentage values are then converted to dollar values by farm type in Appendix Table A-3.2. Finally, the distribution within farm type is given in Appendix Table A-3.3. This distribution is the "B" matrix for the agriculture sectors, which was used to determine the impact matrix in the model.

Table 3.1
INPUT PURCHASES WITH VALUES OF $100M. OR MORE

Number	Commodity	Total
1	Cattle & Calves	$364,000,000
8	Barley,Oats,Rye Corn, Grain,NES	$109,000,000
23	Serv. INcid. to Ag. & Forestry	$270,000,000
85	Primary & Concentrated Feeds	$198,000,000
86	Feed for Commercial Livestock	$1,606,000,000
395	Motor Gasoline	$306,000,000
396	Fuel Oil	$552,000,000
397	Lubricating Oils & Greases	$104,000,000
403	Fertilizers	$232,000,000
469	Fertilizer Chemicals	$558,000,000
481	Agricultural Chemicals	$428,000,000
522	Repair Construction	$314,000,000
546	Electric Power	$224,000,000
550	Wholesaling Margins	$506,000,000
559	Other Rent	$613,000,000
580	Sp Parts & Main. Sup. Mach.&Eq	$399,000,000
583	Transportation Margins	$190,000,000
587	Purchased Rep Serv. for Mach&Eq	$191,000,000
596	Commodity Indirect Taxes	$100,000,000
598	Other Indirect Taxes	$712,000,000
599	Wages & Salaries	$1,278,000,000
601	Net Income, Unincorp. Business	$3,819,000,000
602	Other Operating Surplus	$5,283,000
TOTAL COMMODITY INPUT PURCHASES GREATER T		$18,356,000,000
TOTAL EXPENDITURES ON COMMODITIES FROM $1		$1,292,000,000
TOTAL EXPENDITURES ON COMMODITIES OF LESS		$103,000,000
TOTAL EXPENSES		$19,751,000,000
597	Subsidies	($1,049,000,000)
603	Accounting Row	($1,000,000)
TOTAL OUTPUT		$18,701,000,000

Table 3.2
COMPARISON OF CENSUS SELECTED EXPENDITURES AND INPUT-OUTPUT COMMODITY EXPENDITURES

CENSUS SELECTED EXPENDITURES	CENSUS VALUE (1980)	INDEX	CENSUS VALUE (1981)	AGGREGATE CENSUS VALUES	INPUT-OUTPUT COMMODITY	VALUE IN PRODUCER'S PRICES	MARGINS	VALUE IN PURCHASER'S PRICES	AGGREGATE INPUT-OUTPUT VALUES	DIFFERENCE CENSUS MINUS IO VALUE	PERCENTAGE DIFFERENCE (C-IO)/C
Cash Rent	$337,240	1.2039	$406,003		559 OTHER RENT	$613,368	$0	$613,368	$613,368	$207,365)	-51.07
Share Rent	$283,814	1.2039	$341,684	$747,673						$134,305	17.96%
Cash Wages	$878,554	1.0752	$944,621		599 WAGES & SALARIES	$1,277,846	$0	$1,277,846	$1,277,846	($333,225)	-35.28%
Feed & Supplements	$2,208,004	1.1042	$2,438,078		15 HAY,FORAGE & STRAW	$5,383	$459	$5,842	$2,147,461	$290,617	11.92%
					61 FEEDS OF AN.ORIGIN	$1,138	$928	$2,066			
					85 PRIMARY OR CONCENTRATE	$198,407	$36,409	$234,816			
					86 FEED FOR COMM.LIVSTK.	$1,605,929	$133,275	$1,739,204			
					87 FEEDS,GRAIN ORIGIN,NES	$40,535	$11,379	$51,914			
					88 FEEDS, VEGET. ORIGIN	$3,366	$766	$4,132			
					PET FEEDS	$13,519	$941	$14,460			
					100 BEET PULP	$1,959	$107	$2,066			
					103 OILSEED, MEAL & CAKE	$86,932	6029	$92,961			
Seed & Seedlings	$341,386	1.1534	$393,755		7 WHEAT	$15,387	$2,476	$17,863	$309,405	$84,350	21.42%
					8 BARLEY,OATS,RYE,CORN	$108,816	$18,061	$126,877			
					14 VEGETABLES, FRESH	$37,501	$4,850	$42,351			
					16 SEEDS,EX. OIL	$81,428	$8,760	$90,188			
					18 OILSEEDS, EX.NUTS & KERNELS	$28,847	$3,279	$32,126			
Fertilizer & Lime	$956,853	1.1118	$1,063,829		376 LIME	$12,257	$3,661	$15,918	$1,078,166	($14,337)	-1.35%
					403 FERTILIZER	$231,507	$95,256	$326,763			
					423 AMMONIA, ANHYDROUS	$42,457	$4,621	$47,078			
					469 FERTILIZER CHEMICALS	$557,516	$130,891	$688,407			
Agriculture Chemicals	$356,246	1.1122	$396,217		471 ANTIFREEZE COMPOUNDS	$3,906	$1,254	$5,160	$488,049	($91,832)	-23.18%

Though the total expenditures by the Agriculture sector came from a single source (Statistics Canada) and was distributed amongst the farm types from secondary sources, the means by which the distribution patterns were determined varied. The means of allocating the expense item depended upon the nature of the commodity in question and the nature of the data available with which to estimate the farm type allocation.

3.2.1 Allocations Using Census Data

Much of the estimation is straightforward, involving only the application of the farm type distribution obtained directly from the 1981 Census of Agriculture selected expenditure allocation (%'s) multiplied by the Statistics Canada model control totals to derive the Agriculture Canada Model values. This was the case for 35 of the 86 expenditure items in the model. For each of these items the census data provided categories which offered a reasonable means of estimating the input cost distributions. These items account for 39% of the total expenditures in the model. A list of these 35 items and the corresponding census expenditure categories which were applied to obtain the farm type distribution is presented in Table 3.3. Each of these Census category distributions by farm type can be found in Appendix Table A-3.4.

3.2.2 Allocations Using Census Proxies

An additional 18 items were allocated using other information found in the Census of Agriculture (Table 3.4). These proxies were used in cases where the specific input categories was not available. A total of $1.44 billion were allocated using these proxies.

Livestock Expenses

Data on livestock purchases was not available from the selected expenditure items from the Census of Agriculture. As a proxy for these costs the farm type animal population was used. The livestock expenditures were allocated as a percentage of the number of animals found on each farm type. The livestock population distribution is given in Appendix Table A-3.5 for cattle and calves, hogs and poultry.

Farm Equipment Related Expenses

A number of expense items deal with the operation of agriculture machinery (commodities 127, 314, 315, and 483 in Table 3.4). These expense items were estimated using the number of tractors, machinery and automobiles found on each farm type. These distributions can be found in Appendix Tables A-3.6 and A-3.7.

Table 3.3
COMMODITY EXPENDITURE PATTERNS ESTIMATED FROM CENSUS SOURCES

Commodity No.	Commodity	Census Source
15	Hay, Forage, Straw	Feed & Supplements
16	Seeds,ex. oil & seed grade	Seeds & Seedlings
18	Oil, seeds, nuts & kernels	Seeds & Seedlings
37	Coal	Fuel, Oil, Lubrication
39	Natural Gas	Fuel, Oil, Lubrication
61	Feeds of Animal Origin,nes	Feed & Supplements
85	Primary or Concentrated Feeds	Feed & Supplements
86	Feed for Commercial Livestock	Feed & Supplements
87	Feeds, Grain Origin, nes	Feed & Supplements
88	Feeds, Vegetable Origin,nes	Feed & Supplements
100	Beet Pulp	Feed & Supplements
103	Oilseed, Meal & Cake	Feed & Supplements
287	Wire & Wire Rope, Steel	Rep.& Maint.,Farm Bldgs.
288	Wire Fencing,Screen,Netting	Rep.& Maint.,Farm Bldgs.
333	Modifications, Conversions	Rep.& Maint.,Farm Bldgs.
376	Lime	Fertilizer & Lime
394	Aviation Gasoline	Fuel,Oil & Lubrication
395	Motor Gasoline	Fuel,Oil & Lubrication
396	Fuel Oil	Fuel,Oil & Lubrication
397	Lubricating Oils & Grease	Fuel,Oil & Lubrication
399	Butane,Propane & Oth.Liq.Pet. Products	Fuel,Oil & Lubrication
403	Fertilizer	Fertilizer & Lime
423	Ammonia, Anhydrous & Aqua	Fertilizer & Lime
469	Fertilizer Chemicals	Fertilizer & Lime
471	Antifreeze Compounds	Agricultural Chemicals
481	Agricultural Chemicals	Agricultural Chemicals
522	Repair Construction	Rep.& Maint.,Farm Bldgs.
546	Electric Power	Electricity Used
549	Water and Other Utilities	Electricity Used
559	Other Rent	Cash Rent
577	Rental of Autos & Trucks	Machine Rental & Custom Wk.
579	Rental Mach. & Equip.,incl. Construction Machinery	Machine Rental & Custom Wk.
580	SpareParts&Maintenance	Rep.&Maint.,Farm Mach.
587	Purch. Rep. Serv.,Machinery	Rep.& Maint.,Farm Mach.
599	Wages & Salaries	Cash Wages

Source: Statistics Canada, 1981 Census of Agriculture, Canada, Table 30, Data For Farms With Sales of $2500 or More Classified by Product Type, Selected Expenditures.

Other Real Estate (non-rent) and Finance (Commodity #555)

Census data on the value of land and buildings by farm type were used as a proxy for the distribution of this input expense item in the Use matrix. The underlying assumption for the use of this data as a basis for deriving the expenditure distribution is that costs for real estate/finance would be related to the value of real estate assets (land and buildings) held by farm operators. The derived distribution (shown in Appendix Table A-3.8) was multiplied by the I-O total of $29 M to produce a farm type allocation under the revised Agriculture Canada model structure.

Insurance and W.C.B. Payments (Commodity #556)

This distribution was obtained by determining the total weeks of hired labour utilized by farm type (Agriculture Census, Selected Expenditures by Farm Type, Table 30, 1981). The Statistics Canada total of $50 M in the Use matrix was then distributed according to this percentage allocation by farm type (Appendix A-3.9).

Other Indirect Taxes (Commodity #598)

From Statistics Canada documentation covering the system of commodity classification (Users Guide, Chapter 2, p.9), the items contained in this group of expenditures are: licenses, fees and permits, and real and personal property taxes. Since the largest component within this mix is likely to be property taxes, the value of land and buildings by farm type from the census was used as a basis for allocating these expenses (Appendix Table A-3.8). The I- O total of $712 M was distributed using this distribution.

Other Expense Items

A number of minor expense items were allocated using an estimate of "other expenses". These eight expenses accounted for $49 million or less than 0.3% of the total expenditures by the agriculture sector. The category was estimated by the Program Coordination Division, Regional Development Branch, who attempted to expand on the expenditure items by farm type available from the 1981 Census of Agriculture. Estimates from published total farm expenses for Canada, which had additional expense categories, were allocated to the respective farm types for the year 1980. The miscellaneous (or "other") expense item was determined as a residual after estimates were made for other input categories. This distribution (see Appendix Table A-3.10) was employed only in cases where no other appropriate secondary source could be obtained for the expense item.

Table 3.4
CENSUS SOURCES: PROXY VARIABLES USED TO
DISAGGREGATE USE MATRIX DATA BY FARM TYPE

No.	Commodity	Census Proxies
1	Cattle & Calves	Number of Cattle on Farms
3	Hogs	Number of Hogs on Farms
4	Poultry	Poultry Livestock on Farms (Hens,Chickens,Turkeys)
24	Logs & Bolts	Other Expenses
44	Salt	Other Expenses
45	Peat Moss	Other Expenses
50	Stone, crude	Other Expenses
89	Pet Feeds	Other Expenses
127	Tires & Tubes, nes	Number of Tractors + Numbers of Other Farm Machinery on Farms
314	Tractors, Farm & Garden	Number of Tractors on Farms
315	Other Agric. Machinery	Other Farm Machinery on Farms
483	Auto.Chem. ex. antifreeze	Number Automobiles on Farms
545	Postal Services	Other Expenses
555	Other Real Estate	Value of Land and Buildings
556	Insurance and WCB	Hired and Own Labour
581	Office Supplies	Other Expenses
585	Travel and Entertainment	Other Expenses
598	Other Indirect Taxes	Value of Land and Buildings

Source: Statistics Canada, 1981 Census of Agriculture, Canada, Table 30, Data For Farm With Sales of $2500 or More Classified by Product Type.

3.2.3 Allocations Using Taxfiler Farm Budgets: Receipts, Expenses and Income

The Farm Budget data developed by J. Gellner and W. Darcovitch was used for 11 more expense items. The Gellner data, in its original 1974 form, was indexed to a base year of 1981 using the Farm Input Price Index for the individual items in question. Since this data was available by province, each provincial average cost was multiplied by its corresponding number of farms reporting to derive a provincial total per input item. The values for all provincial expenditures were totalled to obtain a Canadian distribution. Recognizing the weakness of this approach, it was only used when there was no preferred alternative cost data for the farm type expenditure estimates. Thus, the 11 commodities amounted to an allocation of only $171 million out of the total $18.7 billion expenditures of the agriculture sector (i.e. less than 1%). The commodity inputs and the Gellner expenditure categories used to disaggregate them by farm type are listed in Table 3.5. Each of the farm type distributions for these expense items can be found in Appendix Table A-3.11.

For percentages allocated to each farm type for the input items distributed using taxfiler data, see Appendix Table A-3.11.

3.2.4 Allocations Based on Other Secondary Sources

Where reference data from published sources did not directly match the commodity definition in the Use matrix, alternative data was utilized as a proxy for the distribution of input expenditures by farm type. This approach was applied to the commodities shown in Table 3.6. The methodology applied to each of the commodity inputs listed in Table 3.6 will be described in the subsections which follow.

Seeds (Commodities #7, #8, #14)

Seed input purchases are represented by commodities: wheat, unmilled (#7), barley,oats,rye,etc. (#8), and vegetables,fresh (#14) respectively. In each case, acreage planted to each crop was taken from census farm type tables and multiplied by corresponding per acre seed input costs obtained from cost of production publications. Total crop costs for Canada by farm type were totalled and a percentage of the total for each farm type calculated. This percentage was used to distribute the Statistic Canada total expenditures for seed expenditures in the wheat, small grain and vegetable categories outlined above. For example, an examination of Appendix Table A-3.12 reveals the interpretation of the percentages along the row for wheat. Wheat farm expenditures on commodity #7 (wheat, unmilled) amounted to 66.01% of the $15 million total for wheat seed expenditures by the agriculture sector in Canada during 1981. Multiplying the $15 million total by .6601 results in an estimate of $9,000,990 for wheat seed expenditures by Wheat Farms. The $9 million value is then entered in the Use Matrix of the transactions table.

Table 3.5

TAXFILER DATA: INPUT EXPENSE ITEMS USED TO DISAGGREGATE USE MATRIX TOTALS BY FARM TYPE

Expenditures Items (1):

Containers and Twine
Telephone and Electricity
Accounting and Legal Fees

The above items were applied to the following inputs in the Use Matrix:

Commodity No.	Commodity (2)
136	Plastic Containers & Bottle Caps
165	Baler and Binder Twine
166	Other Cordage, Twine & Rope
175	Textile Containers
199	Containers, Closures & Wood Pallets
221	Paper Cartons, Cans, Bags & Bottles
225	Paper Containers, NES
544	Telephone & Telegraph
566	Services to Business Management
575	Rental, Data Processing Equipment
576	Other Services to Business & Persons

(1) Source: W.Darcovich and J.Gellner, Farm Budgets: Receipts Expenses and Incomes By Type and Size of Farm for [Provinces], 1974, Economics Branch, Agriculture Canada, Ottawa.

Other grain seed purchases were calculated as above, but by aggregating crop acreages by provinces for the 4 specific crops which fit into this grain seed category. Seed costs per acre for each of oats, barley, corn for grain and rye were applied to appropriate crop acreages by farm type and by province from census data. Where available, cost of production studies were obtained for (or indexed to) 1981 and the per acre seed costs to producers of these crops used to estimate total provincial seed costs. Provincial seed purchases were totalled and then combined into a national farm type expenditure pattern (Appendix Table A-3.12). The percentage distribution by farm type for seed inputs was then calculated based on the estimated national total for all farm types. The resultant distribution of input expenditure patterns was then multiplied by the Statistics Canada total in the National I-O Model to obtain a farm type distribution of these transactions for the disaggregated model. The estimates are interpreted in the same way as those for wheat above.

For vegetables, the most significant seed purchase was assumed to be made by producers of potatoes who obtained seed stock from commercial seed potato suppliers. Since no specific seed potato expenditure data was available, estimated input purchase patterns in this category were assumed to be reflected in the distribution of commercial table potato production available from the 1981 census. Again, acreage devoted to potato production was summed by province from farm type data. Where possible, cost of production studies for potatoes citing seed potato costs per acre were multiplied by appropriate acreages to obtain total provincial farm type seed expenditures. Provincial totals were aggregated to form a Canadian distribution of purchases by farm type and this percentage allocation was multiplied by the National I-O Model vegetable total in the Use matrix to obtain a revised distribution for the farm industries in the Agriculture Canada model (see Appendix Table A-3.13).

Services Incidental to Agriculture and Forestry (Commodity #23)

Commodity number 23 could not be estimated directly from available data. Instead, services to agriculture industries were assumed to comprise three major components: veterinary, breeding and machinery-custom work expenses. Total expenditures on this commodity item, according to the National I-O model, were listed as $270 million for 1981. For estimation purposes, the Agriculture Canada model assumes that this total is evenly split between veterinary-breeding costs and custom work expenses.

Veterinary and breeding fees were derived from regional cost of production studies which itemized these expenditures for hog, beef and dairy production. Four regions were used as a basis for collecting this cost information- B.C., Prairies, Ontario/Quebec, and the Maritimes. The cost of production studies used ranged in date of publication from 1979 to 1981 and were indexed to a common base year of 1981 using the Farm Input Price Indexes for Western and Eastern Canada. The costs were converted to a per head on-farm (by farm type) basis and multiplied by the corresponding provincial livestock populations for the three types of animal. By this means, estimated total veterinary and breeding costs for Canada (1981) were used to derive a farm type distribution for veterinary- breeding expenses. Because veterinary-breeding expenses were assumed to represent approximately 50% of the $270 million total for this commodity input, the estimated distribution for these farm type expenses was applied to the adjusted $135 million total for this portion of expenditures comprising the services related to agriculture and forestry. (see Appendix A-3.14).

Table 3.6
COMMODITY EXPENDITURE PATTERNS ESTIMATED FROM SECONDARY SOURCES

Commodity No.	Commodity Title
7	Wheat
8	Barley,Oats,Rye,Corn,Grain,NES
14	Vegetables
23	Services Incidental to Agriculture & Forestry
554	Imputed Service,Banks
555	Other Real Estate (non-rent) & Finance
556	Insurance & WCB
559	Other Rent
595	Government Goods & Services
596	Commodity Indirect Taxes
597	Subsidies
598	Other Indirect Taxes
*	Margins
600	Supplementary Labour Income
601	Net Income, Unincorp. Businesses
602	Other Operating Surplus

* Note: Margins are represented by 7 commodity items in the Use matrix. Since the methodology used to disaggregate the margins was the same, these commodities are described as a group. They include:

540 Pipeline Transportation
542 Storage
547 Gas Distribution
550 Wholesaling Margins
553 Retailing Margins
583 Transportation Margins
596 Commodity Indirect Taxes (Tax Margins)

Custom work services to agriculture were assumed to be represented by the distribution obtained from the 1981 Census of Agriculture for Canada (Table 30) outlining Machinery Rental and Custom Work expenditures by farm type. In the census publication, this input item represented a total of $280,064,000. However, since custom work was assumed to comprise only 50% of the $270 million of the total services bill to agriculture, the Census distribution for Machinery Rental and Custom Work was applied to a value of $135 million to obtain the farm type allocation for this component of the Use matrix.

The distribution utilized in the Use matrix of the Agriculture Canada model was obtained by totalling the estimated farm type dollar allocations for veterinary-breeding fees + custom work estimates described above. The derived expenditure allocation was then applied to the National model $270 M total to obtain the disaggregated transaction table values.

Pharmaceuticals (Commodity #408)

The pharmaceutical purchases were estimated using the distribution of the veterinary and medical fees as defined in commodity 23, Services Incidental to Agriculture and Forestry. This distribution by farm type was used to allocate the $37 million in the Use Matrix (see Appendix Table A-3.14).

Services Incidental to Transportation (Commodity #532) and Truck Transportation (Commodity #536)

Input information on these two commodities were difficult to obtain. As a proxy for these distributions the allocation of transportation margins (commodity 583) by farm type was used. It was assumed that transportation expenses would be related to the margins paid for transportation (see Appendix Table A-3.18).

Imputed Services, Banks (Commodity #554)

Information from the Farm Credit Corporation Farm Survey for 1982 covering short, medium and long term borrowings by farm type and Agriculture Canada's Market Commentary: Farm Inputs and Finance, 1980 and 1981, were used to estimate interest payments made by farm types.

Special tabulations of the FCC Survey questionnaire data compiled short, medium and long term borrowing by farm types that corresponded as closely as possible to those obtained from census definitions. These dollar values were then multiplied by the corresponding term interest rates to estimate interest expenses for the respective farm categories. The interest rates applied for 1981, were taken from the Market Commentary publication cited, and are listed below. The rates are national averages compiled from available sources of credit to the farm sector throughout Canada.

Interest Rates

Credit Term	Average Interest Rate
Short Term	20.92%
Medium Term	18.97%
Long Term	15.67%

Source: Agriculture Canada, Market Commentary: Farm Inputs & Finance, Regional Development Branch, December, 1982.

The resulting distribution (percentage allocation) from the tabulated farm type interest expenses for Canada, are shown in Appendix Table A-3.15.

Trade Association Dues (Commodity #578)

This commodity was distributed using the allocation of commodity 23, Services Incidental to Agriculture and Forestry. A total of $xx million was allocated by farm type for this commodity.

Government Goods & Services (Commodity #595)

This commodity was allocated amongst farm types in the model according to the distribution estimated for subsidy payments to the agriculture sector. The assumption is that producers draw on services and goods supplied by government in the course of production activities in the same proportion that they receive assistance from commodity financial assistance programs. For a discussion of the derivation of the subsidy distribution, see the description of methodology utilized to allocate subsidy payments to agriculture (commodity #597 below).

Commodity Indirect Taxes (Commodity #596)

According to Statistics Canada, indirect taxes on commodities include: provincial/federal sales taxes, excise taxes, gasoline taxes and amusement taxes. From unpublished I-O data, the individual commodities to which these taxes applied were made available by the Input-Output Division. The data showed the total expenditures in the form of indirect taxes paid by consumers of each commodity input. The commodities (used as inputs by the Agriculture sector) to which these taxes applied are:

Commodity Indirect Taxes

Commodity No.	I-O Total Commodity
39	Natural Gas
127	Tires & Tubes,NES
225	Paper Containers,NES
288	Wire Fencing,Screen,Netting
394	Aviation Gasoline
395	Motor Gasoline
396	Fuel Oil
397	Lubricating Oils & Grease
399	Butane,Propane& Other Liquid Petroleum Products
471	Antifreeze Compounds
544	Telephone & Telegraph
546	Electric Power

Source: Statistics Canada, Unpublished Statistics, Margins, Input-Output Division.

The Input-Output Division provided total indirect taxes paid to each commodity. To allocate these to the farm types it was assumed that producers would pay these indirect taxes in the same proportion as their expenditures on the 12 component commodities to which the indirect taxes were levied (Appendix Table A-3.16). Since the distribution of the component commodity expenditures was estimated from census input expenditure data by farm type, these percentages were used to allocate the $100 M total for indirect taxes in the I-O model to the disaggregated farm types in the Agriculture Canada model.

Subsidies (Commodity #596)

Subsidy payments describe cash outlays by government toward production costs incurred in the current year (1981). These payments are based on outputs and inputs identified with the year modelled. Payments outlined for production and inputs by commodity were provided by Statistics Canada, Input-Output Division. These figures were then matched against data provided by Agriculture Canada, Agricultural Stabilization Board, which listed payments for production on a monthly basis for the calendar year 1981.

Payments are recorded by farm type for the year in which they were received by producers of the subsidized commodities. For agriculture in 1981, these payments were made to producers of the following outputs:

Subsidy Commodities - Outputs

Commodity No.	Commodity
1	Cattle & Calves
2	Sheep & Lamb
3	Hogs
4	Poultry
5	Other Live Animals
7	Wheat
8	Barley,Oats,Corn,Grain,NES
9	Milk, Unprocessed
10	Eggs in Shell
13	Fruit, Fresh
14	Vegetables, Fresh

Output subsidies were presumed to be received by farm types in proportion to the production of the product produced by the farm type. Hence data from a Statistics Canada special tabulation of farm sales by farm type for 1981 (Agriculture Statistics Division) was used to provide a distribution with which to distribute the subsidies for the farm type expenditures in the Use matrix. This data is also used in disaggregating the Make matrix by farm type. Thus, for a description of the sales distribution pattern of commodity output subsidies, the section on Make matrix methodology presents the percentages used to allocate these expenditures.

Input subsidies were also paid to producers of agricultural commodities. The inputs eligible in 1981 consisted of the commodities listed below:

Subsidy Commodities - Inputs

Commodity No.	Commodity
23	Services Incid.to Ag.& Forestry
376	Lime
396	Fuel Oil
403	Fertilizers
549	Water & Other Utilities
566	Services to Business Management
598	Other Indirect Taxes
	Interest
*	Current & Capital Input Subsidie
**	Canada Manpower Training

The above commodities had their input subsidies allotted to the respective farm types by the amount of the input used by each farm type in the Use matrix. The remaining input subsidies for Current and Capital Inputs and Canada Manpower Training were allocated based upon other proxy measures. Current and Capital Inputs were distributed by the percentages obtained from farm type values of farm capital in the census of agriculture. Canada Manpower Training subsidies were dispersed according to the cash wages figures, also available from the Agriculture Census by farm type.

The total for both categories of subsidy is $1.049 billion in the National I-O model. Once the input and output subsidies had been estimated by farm type, the two subsidy categories were aggregated into a total farm type subsidy record and each farm type's proportion of the $1.049 billion for 1981 was calculated. The final distribution is presented in Appendix Table A-17.

Margins (Commodities as Listed)

Margins which are attributed to individual commodities throughout the Use matrix are identified by seven commodities as listed below. Statistics Canada, I-O Division provided a listing which made possible the disaggregation of margins applied to each of the agricultural commodities in the large level of aggregation for the National IO model. This list traced each margin, by margin category (commodities listed below), for all of the input items in the Use matrix for agriculture.

Commodity No.	Margin Category
540	Pipeline Transportation
542	Storage
547	Gas Distribution
550	Wholesaling Margins
553	Retailing Margins
583	Transportation Margins
596	Commodity Indirect Taxes (Tax Margins)

To distribute the commodity margin expenses by farm type, the distribution patterns for the commodities to which the margins applied were multiplied by the appropriate margin expenses identified in the Statistics Canada margin expense data by commodity. Specific tables detailing the distribution of margins amongst agricultural commodities for each of the margin categories. For the resulting margin distributions utilized within the Use matrix for the margins listed above, see Appendix Table A- 3.18.

Supplementary Labour Income (Commodity #600)

This expense item defines the payments by agricultural producers for labour expenses related to employer contributions to pension funds, workmen's compensation board fees and unemployment insurance premiums. The National model expenditure total of $65 M was distributed according to estimated total employment (hired + operator labour) by farm type (Appendix Table A-3.19).

Weeks of labour by hired employees and operators were estimated from the Census of Agriculture. Operator labour was adjusted (i.e. reduced) in order to take into account the number of weeks of off-farm work to ensure that farm labour was used as a basis for the allocation. The percentage of weeks by farm type was then multiplied by the SLI total in the National model to derive the Use matrix distribution.

Net Income, Unincorporated Business (Commodity #601)

For agriculture, net income is that accruing to farm operators from farm production. The distribution for net farm income by farm type in 1981 was available from special tabulations performed by Statistics Canada and published in "Farming Facts, 1984". Total number of farms in each farm type category were multiplied by the average net farm income per farm type in the special tabulation. Total net incomes for the respective farm types were then used to calculate the percentages by farm type used to allocate the $3.819 billion for this item in the Use matrix (Appendix Table A-3.20).

Other Operating Surplus (Commodity #602)

Other Operating Surplus represents a residual between the value of total output (Make matrix) and the value of all primary and intermediate inputs used in the production process (Use matrix). Thus, the National I-O Model identifies a residual of $5.283 billion for the agriculture sector in the Use matrix. This residual includes corporate profits before tax, dividends and interest paid (net of interest and dividends paid to households), inventory valuation adjustments, donations and (as a negative item), investment income received by the sector. This definition is consistent with that used in the User's Guide of the National I- O Model.

After all other input commodities had been estimated by farm type, total input expenditures were calculated by summing the respective columns in the Use table. Similarly, column totals were taken from the Make matrix after all commodities sold as output from the respective farm types had been allocated. The Use farm type totals were then subtracted from the Make farm type totals to arrive at residuals by farm type. The percentages for each residual by farm type were taken and used to distribute the National I-O model total for Other Operating Surplus in the Agriculture Canada model (Appendix Table A-3.21).

Non-Confidential Accounting Row (Commodity #603)

The data obtained from Statistics Canada was the non-confidential input-output model. This data set has an additional row which suppresses confidential data points and accounts for rounding error. For the agriculture sector the value in the Use matrix for commodity 603 was a negative $1.0 million. This commodity was allocated using the same distribution as commodity 602, Other Operating Surplus, and was subtracted from dollar values in row 602.

IV. METHODOLOGY TO DISAGGREGATE THE MAKE MATRIX

The disaggregation of the Make Matrix details the output produced by each of the expanded agriculture sectors. Section 4.1 reviews the data which was contained in the original single agriculture sector. Section 4.2 reviews the farm type revenue patterns for each of the agriculture sectors. The major data source used in the model was a special tabulation from the 1981 Census of revenue by farm type.

4.1 The Make Matrix for Agriculture

A similar procedure was used to disaggregate the Make matrix as was employed for the Use matrix. The values in the original Make matrix were first compared to other sources for accuracy and then disaggregated by farm type. The agriculture sector in the Statistics Canada Make matrix contained 32 commodities.

The secondary sources which were used to disaggregate the Make matrix were:

1. Statistics, Canada, Imputed Sales Classified By Product and Farm Type, Canada and Provinces, Farms With Sales of $2500 and Over, Special Tabulation, 1981 Census.

2. Statistics Canada, Farming Facts, 1984, Agriculture Statistics Division, Ottawa, 1984.

3. Statistics Canada, Census of Agriculture, 1981, Canada, Catalogue Number 96-901, 1982.

The special tabulation of the 1981 Census was extensively used to disaggregate the Make matrix since it was one of the few sources which detailed income by farm type. The special tabulation outlines the imputed sales of 24 commodities by farm types for 1981. Comparing the estimated values of the imputed commodity sales from the Census tabulation with the input-output tables are shown in Table 4.1. The Census tabulation estimated 94% of the total revenue as estimated in the input- output tables. Of this total, individual commodities whose difference was less than 20% between the two sources accounted for 62% of the estimated income. Increasing the variability between the two sources, 75% of the input-output revenue was accounted for by items whose difference from the input-output sources was less than 30%.

Difference between the Census and input-output revenue data can be explained by the method used to determine the imputed sales of commodities in the Census. The imputed farm sales were determined by estimating the yield from planted acreages in the Census and multiplying this estimate by an average price for the commodity. Adjustments were made to the imputed sales values for the consumption of commodities on farm e.g. animal feed where appropriate. It is assumed that variations between the two sources are due to problems in estimating prices and yields; therefore, the farm type distribution, in percentage terms, as given by the Census tabulation can be used to allocate the input- output commodity values by farm type.

Table 4.1
COMPARISON OF CENSUS IMPUTED SALES AND INPUT-OUTPUT MAKE MATRIX

Inputed Sales 1981 Census By Commodity (Items)	Values ($)	Census Aggregates ($)	Input-Output Commodities (Items)	Values ($)	Census Aggregates ($)	Difference (Census-IO)	Percentage Difference (Census-IO/Cens)
Wheat	$3,469,649,404		7 Wheat, unmilled	$4,464,000,000		($994,350,596)	-29%
Oats-Grain	$150,029,112	$1,603,838,571	8 Barley, Oats, Rye	$1,761,000,000		($157,161,429)	-10%
Barley-Grain	$758,584,345						
Mixed-Grain	$75,685,097						
Corn-Grain	$512,797,556						
Other-Grains	$106,742,461						
Oilseeds	$1,112,765,202		18 Oilseeds, Nuts	$736,000,000		$376,765,202	34%
Hay & Fodder	$64,471		15 Hay, Forage	$7,000,000			
Forage Seed	$25,100,587		16 Seeds, Ex.Oil	$90,000,000			
Apple Trees	$109,886,774						
Other Fruits	$132,860,990	$242,747,764	13 Fruits, Fresh	$279,000,000		($36,252,236)	-15%
Vegetables	$259,233,949	$953,232,020	14 Vegetables, Fresh	$1,064,000,000		($110,767,980)	-12%
Potatoes	$198,954,558						
Other Field Cro	$495,043,513						
Specialty Crops	$378,913,025		11 Honey & Beeswax	$55,000,000	$714,000,000	($335,086,975)	-88%
			12 Nuts, edible	$4,000,000			
			17 Nursery STock	$305,000,000			
			19 Hops, incl. lupulin	$4,000,000			
			20 Tobacco, raw	$346,000,000			
Milk Cows	$2,766,836,543		9 Milk, whole, fluid	$2,492,000,000		$274,836,543	10%
Other Cattle	$4,140,802,718		1 Cattle & Calves	$3,410,000,000	$3,415,000,000	$725,802,718	18%
			62 Hids & Skins	$5,000,000			
Pigs	$1,420,213,402		32 Hogs	$1,604,000,000		($183,786,598)	-13%
		$5,561,016,120			52 Beef, Veal, Pork	$123,000,000	
Sheep	$37,291,111		2 Sheep & Lambs	$22,000,000		$15,291,111	41%
			22 Wool in grease	$2,000,000			
Other Livestock	$237,527,491		5 Other Live Animals	$67,000,000			
			21 Mink Skins	$49,000,000			
			63 Animal Mat. (drugs)	$14,000,000			
Laying Hens	$438,499,139		10 Eggs, in shell	$487,000,000		($48,500,861)	-11%
Other Chicken	$452,251,648		4 Poulty	$742,000,000		($289,748,352)	-64%
Other Poultry	$178,537,346	$630,788,994	65 Poultry, Fresh	$33,000,000			
Maple Tappings	$32,185,206		107 Maple Sugar	$43,000,000		($10,814,794)	-34%
Imputed Sales	$17,490,455,648			$18,701,000,000		($1,210,544,352)	-7%

4.2 Farm Type Revenue Patterns

A complete listing of the 32 commodities produced in the agriculture sector is provided in Appendix Table A-4.1. In this table each commodity is itemized and the corresponding distribution of the revenue by farm type is shown. These percentage values are converted into dollar values by farm type in Appendix Table A-4.2. In Appendix Table A-4.3, the revenue distribution within farm type is given. This distribution is the "D" matrix for the agriculture sectors, which will be used to determine the impact matrix in the model.

As with the Use matrix, the total revenue by commodity for the agriculture sector came from a single source (Statistics Canada) and was distributed among the farm types using a number of secondary sources. The means of allocating these values depended upon the commodity considered and the availability of information on the commodity by farm type. The allocation of these commodities to the respective farm types is detailed below.

4.2.1 Allocations Using Census Data

The commodities found in the Census tabulation compare closely, but not exactly, to the commodities in the input- output Make matrix. This meant that some of the Census distributions could be used directly to allocate some of the input-output values, while other commodities in the Census tabulation, due to definitional differences between the two sources, required some aggregation to correspond closer to the input-output commodities. Those commodities in Table 4.2 marked with an asterisk (*) were employed directly from the special tabulation in determining a percentage distribution for the Make matrix in the disaggregated input-output model. The corresponding input-output commodities which used these direct Census distributions are found in Table 4.3.

4.2.2 Allocations Using Other Census Proxies

The unmarked commodities in Table 4.2 were combined with other sales data to approximate the input-output commodity definitions, prior to calculation of the distribution applied in the Agriculture Canada model. Each of these commodity combinations is described below in the context of the Make matrix commodity to which they were applied. The sales of commodities in the special tabulation were combined in order to increase the compatibility with the commodities in the Make matrix. For example, poultry (commodity #4) output is defined as separate from eggs in shell (commodity #10); hence, sales of products from other chicken and other poultry were totalled and used to derive a percentage distribution by farm type for poultry, while sales from laying hens were used to distribute eggs in the Make matrix.

The combinations of commodity sales data in the special tabulation applied to Make matrix commodities are outlined in Table 4.4. The distribution of these commodity aggregations by farm type are given in Appendix Table A-4.4.

Table 4.2
COMMODITY SALES BY FARM TYPE AS DOCUMENTED
BY SPECIAL TABULATION, 1981 CENSUS

Wheat *	Other Fruits
Oats-Grain	Vegetables
Barley	Specialty Crops *
Mixed Grain	Milk Cows *
Corn-Grain	Other Cattle *
Other Grain	Pigs *
Oilseeds *	Sheep *
Hay & Fodder Crops	Other Livestock *
Forage Seeds *	Laying Hens *
Potatoes	Other Chickens
Other Field Crops *	Other Poultry
Apple Trees	Maple Tappings *

Source: Statistics, Canada, Imputed Sales Classified By Product Type, Canada and Provinces, Farms With Sales of $2500 and Over, Special Tabulation, 1981 Census.

Table 4.3
MAKE MATRIX COMMODITIES DISTRIBUTED USING DISTRIBUTIONS
OBTAINED FROM SPECIAL TABULATION, 1981 CENSUS

	Make Commodity	Spec.Tab. Commodity
1	Cattle & Calves	Other Cattle
2	Sheep & Lambs	Sheep
3	Hogs	Pigs
5	Other Live Animals	Other Livestock
7	Wheat, unmilled	Wheat
9	Milk, whole,fluid,unproc.	Milk Cows
10	Eggs in shell	Laying Hens
11	Honey & Beeswax	Specialty Crops
12	Nuts,edible,unshelled	Specialty Crops
15	Hay,Forage,Straw	Hay & Fodder Crops
16	Seeds, ex. oil & seed	Forage Seeds
17	Nursery Stock	Specialty Crops
18	Oil Seeds, nuts & kernels	Oilseeds
19	Hops, incl. lupulin	Specialty Crops
20	Tobacco, raw	Specialty Crops
21	Mink skins	Other Livestock
22	Wool in grease	Sheep
62	Hides & Skins, raw	Other Cattle
63	Animal Material, for drugs	Other Livestock
107	Maple Sugar & Syrup	Maple Tappings

Table 4.4
COMBINATIONS OF COMMODITY SALES DATA USED TO
DISTRIBUTE MAKE MATRIX COMMODITIES BY FARM TYPE

	Make Commodity	Spec.Tab. Estimate
4	Poultry	Other Chicken + Other Poultry
8	Barley,Oats,Rye,Corn	Barley + Oats + Corn + Mixed + Other Grain
13	Fruits, fresh	Apple Trees + Other Fruit
14	Vegetables, fresh Crops	Vegetables + Oth. Field + Potatoes
52	Beef,Veal,Pork, fresh	Other Cattle + Hogs
65	Poultry, fresh,froz.	Other Chicken + Other Poultry

Other information found in the Census covering woodland area by farm type was used as a means of allocating output of four commodities:

24 Logs and Bolts
25 Poles, Pit Props
26 Pulpwood
27 Other Crude Wood Materials

Since no source permitted a direct means of estimating farm type production of these products, the 1981 census information giving the woodland area (acres) by farm type was used as a proxy for estimation purposes (see Appendix Table A-4.5).

4.2.3 Allocations Based on Other Secondary Sources

Services incidental to agriculture (commodity #23) and other rent (commodity #559) are commodities whose distribution by farm type were determined from the 1984 Farming Facts publication from Statistics Canada. The table in this publication entitled, "Average Income by Source for Census Farm Operator Families, Canada and Provinces, 1980" was the basis on which percentages were established. For incidental services, non- farm self-employment income by farm type was used as a proxy to determine the farm type allocation in the Make matrix. The average income per farm family in the table was multiplied by the number of farm families reporting such income and the percentage distribution by farm type was employed to obtain the values to be used by the Agriculture Canada Make matrix. The resulting distribution is outlined in Table 4.5.

Table 4.5
NET NON-FARM SELF-EMPLOYMENT INCOME BY FARM TYPE, 1981 CENSUS

Farm Type	No.Census Farm Fam.	Net Non-Farm Self-Employ Income Per Farm ($)	Total By Farm Type ($)	Distribn. %
Dairy	39,785	878	34,931,230	10.95%
Cattle	52,835	1,575	83,215,125	26.09%
Hog	11,455	1,347	15,429,885	4.84%
Poultry	5,025	1,697	8,527,425	2.67%
Wheat	44,465	1,013	45,043,045	14.12%
Small Grain	44,945	1,577	70,878,265	22.22%
Oth.Field Cr.	6,990	1,278	8,933,220	2.80%
Fruit & Veg.	9,405	1,260	11,850,300	3.72%
Misc. Spec.	10,445	2,232	23,313,240	7.31%
Livestk Comb.	8,170	1,105	9,027,850	2.83%
Crop Comb.	485	1,523	738,655	.23%
Other Comb.	4,040	1,750	7,070,000	2.22%
			318,958,240	100.00%

Source: Statistics Canada, Average Income by Source and by Type of Farm for Census Farm Operator Families, Canada, 1980, Agricultural Statistics Division, Farming Facts 1984.

Other rent was estimated from the same Farming Facts table, but by utilizing income sources contributing to investment income by farm type. Investment income in the table was defined to include: bond interest, dividends, mortgage interest, net rents, estate income, bank interest and other investment income. This data resulted in the distribution shown in Table 4.6.

Table 4.6
INVESTMENT INCOME BY FARM TYPE, 1981 CENSUS

Farm Type	No.Census Farm Fam.	Investment Income	Total By Farm Type	Distribn. %
Dairy	39,785	1,531	60,910,835	9.81%
Cattle	52,835	2,892	152,798,820	24.61%
Hog	11,455	1,344	15,395,520	2.48%
Poultry	5,025	2,581	12,969,525	2.09%
Wheat	44,465	3,044	135,351,460	21.80%
Small Grain	44,945	2,759	124,003,255	19.97%
Oth.Field Cr.	6,990	3,853	26,932,470	4.34%
Fruit & Veg.	9,405	3,741	35,184,105	5.67%
Misc. Spec.	10,445	3,398	35,492,110	5.72%
Livestk Comb.	8,170	1,329	10,857,930	1.75%
Crop Comb.	485	2,702	1,310,470	0.21%
Other Comb.	4,040	2,417	9,764,680	1.57%
			620,971,180	100.00%

Source: Statistics Canada, Average Income by Source and by Type of Farm for Census Farm Operator Families, Canada, 1980, Agricultural Statistics Division, Farming Facts 1984.

V. OTHER DATA REQUIREMENTS AND MODEL SIMULATION

This final section reviews the other information which is necessary in order to generate the inverse and impact matrices for the input-output model and a simulation using the completed model. Section 5.1 reviews the method by which the leakages from the economy were determined. Section 5.2 reviews the type of information which would be generated with the model for a sample simulation.

5.1 Leakage Coefficients

The leakage coefficients used in the model are those estimated by Statistics Canada. The leakage coefficients estimate the share of imports, withdrawals from inventories or government production which supply commodities used in the domestic production of goods and services. The effect of these coefficients are to reduce the impact of an increase in the final demand for goods produced by the economy. This will occur since the amount of imports, withdrawals from inventories or government production will dampen the impact on the economy of an increase in final demand.

The coefficients are determined on a commodity basis as a ratio of the leakage value to the total value of the commodity used in the economy. From section 1.2 the leakage coefficients for imports (P) are the value of imports for each commodity divided by the total value of each commodity used as an intermediate input, personal expenditure, fixed capital formation, value of the additions to inventory, gross government current expenditures on goods and services and the value of re-exports.

$$\text{(Eq. 18)} \qquad M = \hat{P}\,(Bg + f + E)$$

Similarly, the coefficients for withdrawals from inventories (J) are estimated from the ratio of inventory withdrawals to the summation of: value of intermediate inputs, personal expenditures, fixed capital formation, additions to inventories, gross government expenditures and domestic

$$\text{(Eq. 19)} \qquad N = \hat{J}\,(Bg + f + X)$$

exports. Finally, the leakage coefficients for government production (T) are calculated as a ratio of the value of government production of each commodity divided by the summation of: the value of each commodity used as an intermediate input, personal expenditures, fixed capital formation, additions to inventories, gross government expenditures and domestic exports.

$$\text{(Eq. 20)} \qquad A = \hat{T}\,(Bg + f + X)$$

Each of these coefficients were estimated by the Input- Output Division of Statistics Canada and were used to generate the disaggregated input-output model.

5.2 Model Simulation

The model was used to estimate the impact of an increase in Canadian wheat exports. The simulation assumes that the foreign demand for wheat has increased by $100 million. To perform the analysis, the export demand for wheat must be converted from purchasers' prices to producers' prices. This is needed since the model was constructed using producers' prices and therefore the changes in final demand must be stated in producers' prices. The conversion from purchasers' to producers' prices is accomplished by removing the margins from the value of the commodity in purchasers' prices. For the commodity wheat, the margins which have to be removed are: storage, wholesale and transportation (Table 5.1). The largest margins in this example are for storage and transportation. As is shown in table 5.1, the commodity value in purchasers' prices is equal to the value of the commodity in producers' prices plus the margins which have been removed.

In order to estimate the change in domestic final demand it is necessary to remove from the change in final demand other sources of supply. This is done by identifing the leakages from the economy for the good whose demand is changing. The other sources of supply could come from imports, inventories or government production (Table 5.1). With the removal of the leakages the change in domestic final demand can be identified.

Taking the impact matrix $[(I-DB)^{-1} * D]$ $\hat{e}$ and multipling it by the change in domestic final demand will provide an estimate of the change in output required to satisfy the increase in domestic final demand in wheat. This estimate of the change in industrial output is given in Table 5.2. The $100 million increase in wheat exports would increase the total output of the economy by $165.3 million. Table 5.2 shows output required by each of the industrial sectors to satisfy the change in final demand. This industrial breakdown can be increased to 200 industries using the large level of aggregation for industrial sectors in the model (see Appendix Table A-5.1).

The impact of this increased output by the industrial sectors can also be translated into increases in GDP at factor cost and employment. To determine these impacts requires the development of GDP at factor cost and employment coefficients. Each coefficient is determined by taking the total GDP at factor cost per sector (or total employment per sector) and dividing by the total industrial output for that sector.

$$\text{GDP at Factor Cost Coefficient for Each Sector} = \frac{\text{Total GDP at Factor Cost (per sector)}}{\text{Total Output (per sector)}}$$

$$\text{Employment Coefficient for Each Sector} = \frac{\text{Total Employment (per sector)}}{\text{Total Output (per sector)}}$$

Using these coefficients it is possible to estimate the impact of the increase in wheat exports on GDP at factor cost and employment in the economy (Table 5.3). The total increase in GDP at factor cost is $84.4 million and employment would increase by 2,800 paid and unpaid jobs. The distribution of GDP at factor cost and and employment can be seen at any aggregation of the 200 industries in the model (see Appendix Table A-5.1)

Table 5.1
FORMULATION OF DOMESTIC FINAL DEMAND VECTOR
WHEAT SIMULATION

Comm. No. (1)	Comm. (2)	Tot. Final Demand (3)	Gov't. Rev. (4)	Inv. With. (5)	Imp. (6)	Domest. Fin.Dem. (7)
		$	$	$	$	$
007	Wheat	86,188,519	4,309	64,441	0	86,119,769
542	Storage Margins	4,617,186	16,299	0	785	4,600,102
550	Wholesale Margins	3,838,694	1,689	0	68,981	3,768,024
583	Transport Margins	5,355,601	0	0	0	5,355,601
	Total	100,000,000	22,297	64,441	69,766	99,843,496

Note: (1)Total Final Demand = Domestic Final Demand + Gov't. Revenue + Inven. Withdraw. + Imports

Table 5.2
IMPACT ON OUTPUT, BY INDUSTRY
WHEAT SIMULATION

	Industry-Small Agg.	L Seq.No.	Output ($)
1	Dairy	1	1,739,452.5
2	Cattle&Calves	2	6,001,516.0
3	Hogs	3	934,413.4
4	Poultry	4	364,773.1
5	Wheat	5	57,036,296.0
6	Sm.Grains	6	19,047,116.0
7	Field Crops	7	550,533.1
8	Fruit&Veget.	8	155,663.6
9	Misc.Spec.	9	124,522.6
10	Livstk.Combin.	10	2,538,752.0
11	Fld.Crop Comb.	11	173,712.0
12	Oth.Comb.	12	1,051,978.0
13	Forestry	13	221,562.6
14	Fishing,Hunt,Trap	14	18,355.2
15	Mines,Quar,Oil Well	15-26	4,584,569.0
16	Manufacturing	27-148	22,645,220.3
17	Construction	149-157	2,258,490.3
18	Transport.&Storage	158-168	13,703,202.5
19	Communication	169-171	1,186,007.0
20	Elect.,Gas,Oth.Util.	172-174	1,405,110.0
21	Wholesale Trade	175	6,445,086.0
22	Retail Trade	176	1,645,202.8
23	Finan,Ins.,Real Est.	177-181	6,532,347.2
24	Comm.Bus.,Pers.Serv.	182-194	1,931,751.3
25	Transport.Margins	198	6,771,031.5
26	Op.Office,Lab.&Food	195-197,199,202	4,996,370.2
27	Trav.&Advert.Promo.	200-201	1,216,809.0
	Sum:		165,279,843.0

Source: Agriculture Canada Input-Output Model, Analysis of Change in Final Demand for Wheat Exports ($100M).

Table 5.3
IMPACT ON INCOME AND EMPLOYMENT, BY INDUSTRY
WHEAT SIMULATION

	Industry-Small Agg.	L Seq.No.	GDP Factor Cost ('000)	Employment (No.)
1	Dairy	1	1,059,082.3	50
2	Cattle&Calves	2	2,868,610.8	179
3	Hogs	3	462,109.9	15
4	Poultry	4	177,255.5	4
5	Wheat	5	41,409,540.0	1,125
6	Sm.Grains	6	7,111,014.5	526
7	Field Crops	7	343,457.6	15
8	Fruit&Veget.	8	101,872.5	9
9	Misc.Spec.	9	71,657.3	7
10	Livstk.Combin.	10	1,372,392.8	51
11	Fld.Crop Comb.	11	79,530.8	4
12	Oth.Comb.	12	411,859.3	40
13	Forestry	13	98,434.7	3
14	Fishing,Hunt,Trap	14	12,599.4	1
15	Mines,Quar,Oil Well	15-26	2,495,080.1	14
16	Manufacturing	27-148	4,830,638.1	126
17	Construction	149-157	923,690.9	28
18	Transport.&Storage	158-168	7,551,605.3	244
19	Communication	169-171	931,352.9	23
20	Elect.,Gas,Oth.Util.	172-174	1,062,605.7	12
21	Wholesale Trade	175	4,381,030.0	138
22	Retail Trade	176	1,126,137.9	78
23	Finan,Ins.,Real Est.	177-181	4,209,195.4	71
24	Comm.Bus.,Pers.Serv.	182-194	1,337,302.7	70
25	Transport.Margins	198	0.0	0
26	Op.Office,Lab.&Food	195-197,199,202	0.0	0
27	Trav.&Advert.Promo.	200-201	0.0	0
				0
	Sum:		84,428,056.2	2,831

Source: Agriculture Canada Input-Output Model, Analysis of Change in Final Demand for Wheat Exports ($100M).

5.3 Summary

The disaggregated agriculture sector input-output model developed by Agriculture Canada has been designed to increase the effectiveness of the Statistics Canada National Input-output Model to address agriculture policy related questions. The disaggregation is based on a farm type industrial structure for the agriculture sector. The data required to disaggregate the farm type sectors has been taken from other published and unpublished secondary sources which estimated the input purchases and the value of production of the agriculture sector in 1981.

This documentation is meant to provide a means of tracing the process and data sources used in the development of the twelve agriculture sectors in the model. The data used to develop the model was considered the most appropriate at the time the model was being constructed. Further refinements to the data sources used in this model and the development of alternative sources will provide a means of updating the present model and facilitate the modification of future input-output models.

This documentation also provides an example of the completed framework of the National Input-Output Model with the disaggregated agricultural sectors. The sample simulation is presented to demonstrate the type of information which will be generated from the model. The simulation provides an estimate of the impact on the Canadian economy in terms of output, GDP at factor cost and employment from an increase in the export demand for Canadian wheat.

Selected References

1. Agriculture Canada, Handbook of Selected Agricultural Statistics, Min. Supply & Services, Ottawa, 1984.

2. Darcovich, W. and J. Gellner, Farm Budgets: Receipts,Expenses, and Incomes by Type and Size of Farm, Agriculture Canada, Ottawa, 1978.

3. Farm Credit Corp., Farm Survey, 1984: Borrowings By Farm Type, Special Tabulation, Ottawa, 1985.

4. Gigantes, T. "The Representation of Technology in Input-Output Systems", in Applications of Input-Output Analysis, A.P. Carter and A. Brody editors, North-Holland Publishing Company, London, 1970.

5. Hoffman, R.B., "Some National Input-Output Models", in National and Regional Economic Models of Agriculture, Roger K. Eyvindson editor, Economics Branch Publication No. 72/9, Agriculture Canada, Ottawa, 1972.

6. Round, J.I., "Non-Survey Techniques: A Critical Review of the Theory and the Evidence", International Regional Science Review, Vol. 8, No. 3, December 1983.

7. Statistics Canada, Agriculture Population Linkage, Census of Agriculture, Special Tabulation, Ottawa, 1981.

8. Statistics Canada, Census of Agriculture 1981, Statistics Canada, Table 30, Ottawa, 1981.

9. Statistics Canada, Census of Agriculture, 1981, Canada, Ministry Supply & Services, Cat.No. 96-901, Ottawa, 1982.

10. Statistics Canada, Farm Input Price Index, Ministry Supply & Services, Cat.No.62-004, Ottawa, 1983.

11. Statistics Canada, Farm Net Income, Ministry Supply & Services, Cat.No.21-202, Ottawa, 1981.

12. Statistics Canada, Farming Facts, 1984, Agriculture Statistics Division, Ottawa, 1984.

13. Statistics Canada, Imputed Sales Classified by Product and Farm Type, Special Tabulation, Census 1981, Ottawa, 1981.

14. Statistics Canada, Input-Output Tables for Canada, 1979-81, Ministry Supply & Services, Ottawa, 1981.

15. Statistics Canada, Standard Commodity Classification Manual, Volume I, Industry Trade & Commerce, Rev.1972, Ottawa, 1972.

16. Statistics Canada, Standard Industrial Classification, 1980, Ministry Supply & Services, Cat.No.12-501E, Ottawa, 1980.

17. Statistics Canada, Subsidies, Marqins and Commodity Taxes, (Unpublished Data), Input-Output Division, Ottawa, 1986.

18. Statistics Canada, The Input-Output Structure of the Canadian Econonomy 1979-81, Ministry Supply & Services, Ottawa, 1981.

19. Statistics Canada, User's Guide to Statistics Canada Structural Economic Models, Structural Analysis Div., Ottawa, 1981.

20. Syed, A.A., "The Input-Output Structure of Agriculture in Canada", in Agricultural Sector Models for Policy Analysis, Z.A. Hassan and H. Bruce Huff editors, Agriculture Canada, Ottawa, 1985.

APPENDIX (A)

Table A-2.1

LIST OF INDUSTRIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	INDUSTRY	Large Agg.No.	No.	INDUSTRY	Large Agg.No.
1	Dairy	1	101	Agricultural Implement In	103
2	Cattle & Calves	2	102	Misc. Machinery & Equip.	104
3	Hogs	3	103	Comm. Regrig. & Air Cond.	105
4	Poultry	4	104	Office & Store Machinery	106
5	Wheat	5	105	Aircraft & Parts Mfgrs.	107
6	Sm.Grains	6	106	Motor Vehicle Mfgrs.	108
7	Field Crops	7	107	Truck Body & Trailer Mfgr	109
8	Fruit & Veget.	8	108	Motor Vehicle Pts. & Acce	110
9	Misc.Spec.	9	109	Railroad Rolling Stock In	111
10	Livstk.Combin.	10	110	Shipbuilding & Repair	112
11	Fld.Crop Comb.	11	111	Misc. Transp. Equip. Ind.	113
12	Oth.Comb.	12	112	Small Electrical Applianc	114
13	Forestry	13	113	Major Appliances, Elect.	115
14	Fishing,Hunt,Trap	14	114	Radio & Television Receiv	116
15	Gold Mines	15	115	Communications Equipment	117
16	Uranium Mines	16	116	Mfgrs. of Elect. Ind. Equ	118
17	Iron Mines	17	117	Battery Mfgrs.	119
18	Base Mtl&Oth.Metal Mi	18	118	Mfgrs. of Electric Wire &	120
19	Coal Mines	19	119	Mfgrs. of Misc. Elect. Pr	121
20	Petroleum & Gas Wells	20	120	Cement Mfgrs.	122
21	Asbestos Mines	21	121	Lime Mfgrs.	123
22	Gypsum Mines	22	122	Concrete Products Mfgrs.	124
23	Salt Mines	23	123	Readymix Concrete Mfgrs.	125
24	Oth. Non-Metal Mines	24	124	Clay Products Mfgrs.	126
25	Quarries & Sand Pits	25	125	Refractories Mfgrs.	127
26	Serv. Incid'l to Minin	26	126	Stone Products Mfgrs.	128
27	Slaught'g & Meat Proce	27	127	Other Non-Metallic Produc	129
28	Poultry Processors	28	128	Glass & Glass Products Mf	130
29	Dairy Factories	29	129	Abrasives Mfgrs.	131
30	Fish Products Industry	30	130	Petroleum Refineries	132
31	Fruit & Vege, Process	31	131	Oth. Petroleum & Coal Pro	133
32	Feed Mfgrs.	32	132	Mfgrs. of Mixed Fertilize	134
33	Flour & Break, Cereals	33	133	Mfgrs of Plast. & Synth.	135
34	Biscuit Mfgrs.	34	134	Mfgrs. of Pharm. & Medici	136
35	Bakeries	35	135	Paint & Varnish Mfgrs.	137
36	Confectionery Mfgrs.	36	136	Mfgrs of Soap & Cleaning	138
37	Sugar Refineries	37	137	Mfgrs. of Toilet Preparat	139
38	Vegetable Oil Mills	38	138	Mfgrs of Industrial Chemi	140
39	Misc. Food Indust	39	139	Oth. Chemical Industries	141
40	Soft Drink Mfgrs.	40	140	Scient. & Prof. Equip. Mf	142

- cont'd -

Table A-2.1 (cont'd)

LIST OF INDUSTRIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	INDUSTRY	Large Agg.No.	No.	INDUSTRY	Large Agg.No.
41	Distilleries	41	141	Jewelry & Silverware Mfgr	143
42	Breweries	42	142	Broom, Brush, & Mop Indus	144
43	Wineries	43	143	Sporting Goods & Toy Indu	145
44	Leaf Tobacco Proces'g	44	144	Linoleum & Coated Fabrics	146
45	Tobacco Products Mfgrs.	45	145	Signs & Display Ind.	147
46	Rubber Footwear Mfgrs.	46	146	Misc. Mfgring. Ind., NES	148
47	Other Rubber Indus.	47,48	147	Repair Construction	149
48	Plastic Fabri'rs,NES	49	148	Residential Construction	150
49	Leather Tanneries	50	149	Non-Residential Construct	151
50	Shoe Factories	51	150	Road, Highway, Airstrip C	152
51	Leather Glove Fact.	52	151	Gas & Oil Refinery Constr	153
52	SmallLeatherGoodsMfgrs	53	152	Dams & Irrigation Project	154
53	Cotton Yarn&Cloth Mills	54	153	Railway, Telephone, Teleg	155
54	Wool, Yarn&Cloth Mills	55	154	Oth. Engineering Constr.	156
55	Synth. Text. Mills	56	155	Construction, Oth. Activi	157
56	Fibre Prep'ng Mills	57	156	Air Transport	158
57	Thread Mills	58	157	Services Incidental to Tr	159
58	Cordage & Twine Industry	59	158	Water Transport	160
59	Narrow Fabric Mills	60	159	Railway Transport	161
60	Pressed&Punched Felt Mi	61	160	Truck Transport	162
61	Carpet,Mat&Rug Indus.	62	161	Bus Transp., Interurban &	163
62	Textile Dyeing&Finishin	63	162	Urban Transit Systems	164
63	Canvas Prod. Indus.	64	163	Taxicab Operations	165
64	Cotton&Jute Bag Industr	65	164	Pipeline Transport	166
65	Misc. Textile Ind	66	165	Highway & Bridge Maintena	167
66	Hosiery Mills	67	166	Storage	168
67	Other Knitting Mills	68	167	Radio & Tel. Broadcasting	169
68	Clothing Industries	69	168	Communication Industries,	170
69	Sawmills	70	169	Post Office	171
70	Veneer&Plywood Mills	71	170	Electric Power	172
71	Sash&Door&Planing Mil	72	171	Gas Distribution	173
72	Wooden Box Factories	73	172	Water & Other Utilities	174
73	Coffin&Casket Indus.	74	173	Wholesale Trade	175
74	Misc. Wood Indust	75	174	Retail Trade	176
75	Household Furn. Indus	76	175	Owner Occupied Dwellings	177
76	Office Furn. Industry	77	176	Govt. Royalties on Nat.Re	178
77	Other Furn. Industrie	78	177	Banks & Credit Unions	179
78	Elec. Lamp & Shade Ind	79	178	Insurance	180
79	Pulp & Paper Industry	80	179	Oth. Fin.,Ins. & Real Est	181
80	Asphalt&Related Pro.	81	180	Education & Related Servi	182
81	Paper Box & Bag Mfgrs.	82	181	Hospitals	183
82	Other Paper Converters	83	182	Health Services	184

- cont'd -

Table A-2.1 (cont'd)

LIST OF INDUSTRIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	INDUSTRY	Large Agg.No.	No.	INDUSTRY	Large Agg.No.
83	Printing & Publishing	84	183	Motion Picture Theatres	185
84	Engrav'g, Stereoty'g I	85	184	Other Recreational Servic	186
85	Iron & Steel Ind.	86	185	Prof. Services to Busines	187
86	Steel Pipe & Tube Mills	87	186	Advertising Services	188
87	Iron Foundries	88	187	Laundries & Cleaners	189
88	Smelting & Refining	89,90	188	Accomodation & Food Servi	190
89	Alum. Rolling & Extrud	91	189	Other Personal Services	191
90	Copper & Alloy Rolling	92	190	Photography	192
91	MetalCast'g&Extruding	93	191	Misc. Repair & Maintenanc	193
92	Boiler & Plate Works	94	192	Misc. Services to Bus. &	194
93	Fabricated Struct.Metal	95	193	Operating Supplies	195
94	Ornamental&Arch.Metal	96	194	Office Supplies	196
95	Metal Stamp.Press.&Coa	97	195	Cafeteria Equip.	197
96	Wire&Wire Products Mfgr	98	196	Transportation Margins	198
97	Hard. Tool&Cutlery M	99	197	Laboratory Supplies	199
98	Heating Equip. Mfgrs.	100	198	Travel & Entertainment	200
99	Machine Shops	101	199	Advertising & Promotion	201
100	Misc. Metal Fabri'g I	102	200	Machinery Repair Services	202

Table A-2.2

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
1	Cattle & Calves	51	Services Incid. to Mining
2	Sheep & Lambs	52	Beef,Veal,Mut,Pork,Fr,Frz
3	Hogs	53	Horse Meat,Fr,Chill,Frz
4	Poultry	54	Meat,Cured
5	Oth. Live Animals	55	Meat Prep.,Cooked,Not Can
6		56	Meat Prep.,Canned
7	Wheat Unmilled	57	Animal Oils &Fats&Lard
8	Barl,Oats,Rye,,Grain,NES	58	Marg,Shorten,Like Prod.
9	Milk,Whole,Fluid,Unproc.	59	Sausage Casings,Nat,Synth.
10	Eggs in Shell	60	Primary Tankage
11	Honey & Beeswax	61	Feeds Animal Origin, NES
12	Nuts,Edible,Not Shelled	62	Hides & Skins,Raw,NES
13	Fruits,Fresh, Ex.Tropical	63	Animal Mat.For Drugs&Perf
14	Vegetables, Fresh	64	Custom Work Meat & Food
15	Hay, Forage & Straw	65	Poultry, Fr,Chill,Frz
16	Seeds,Ex.Oil & Seed Grade	66	Poultry,Canned
17	Nursery Stock & Rel. Mat.	67	Milk,Whole,Fluid,Process
18	Oil Seeds, Nuts & Kernels	68	Cream,Fresh
19	Hops, Inc. Lupulin	69	Butter
20	Tobacco, Raw	70	Cheese,Cheddar & Process
21	Mink Skins, Ranch Undress	71	Milk,Evaporated
22	Wool in Grease	72	Ice Cream
23	Serv.Incid.to Agr.&Forest	73	Other Dairy Products
24	Logs & Bolts	74	Mustard,Mayonnaise
25	Poles,Pit Prop, Posts,etc	75	Fish Products
26	Pulpwood	76	Fruit,Berries,Dried,Cryst
27	Other Crude Wood Material	77	Fruits & Prep, Canned
28	Custom Forestry	78	Veget.,Frz,Dried,Pres.
29	Fish Landings	79	Vegetables & Prep,Canned
30	Hunting & Trapp Products	80	Soups, Canned
31		81	Infant & Junior Foods,Can
32	Gold & Alloys,Prim. Form	82	Pickles,Relishes,Oth.Sauc
33	Radio-Active Ores & Conc.	83	Vinegar
34	Iron Ores & Concen.	84	Oth.Food Preparations
35	Bauxite + Alumina	85	Primary or Concen. Feeds
36	Metal Ores + Concen. NES	86	Feed,Commercial Livestock
37	Coal	87	Feeds,Grain Origin,NES
38	Crude Mineral Oils	88	Feed,Vegetable Origin,NES
39	Natural Gas	89	Pet Feeds
40		90	Wheat Flour
41	Sulphur,Crude & Refined	91	Meal,Flour-Oth.Cereal&Veg.
42	Asbestos,Unmfg,Crude,Fibr	92	Breakfast Cereal Products
43	Gypsum	93	Biscuits
44	Salt	94	Bread & Rolls
45	Pealmoss	95	Other Bakery Products
46	Clay,Oth.Cr.Refrac.Mat.	96	Cocoa & Chocolate
47	Nat.Abrasives,Ind.Diamond	97	Nuts,Kernels,Seeds,Prep
48	Crude Mineral,NES	98	Chocolate, Confectionery
49	Sand & Gravel	99	Other Confectionery
50	Stone,Crude	100	Beet Pulp

- cont'd -

Table A-2.2 (cont'd)

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
101	Sugar	151	Yarn of Wool & Hair
102	Molasses,Sugar Ref. Prod.	152	Fabr,woven,Wool,Hair,Mix
103	Oilseed Meal & Cake	153	Papermakers Felts
104	Veg.Oils & Fats, Crude	154	Man-made Fibres
105	Nitrogen Funct.Comp,NES	155	Polyamide Resins(Nylon)
106	Malt,M.Flour,Wheat Starch	156	Yarns, Silk, Fibreglass
107	Maple Sugar & Syrup	157	Tire Yarns
108	Prep.Cake & Similar Mixes	158	Fabric,Woven,Text Fibres
109	Soups,Dried,Mixes & Bases	159	Fab,Broad,Woven,Mix,Blend
110	Coffee Roast,Ground,Prep.	160	Rag&Waste,Cotton,Text.Mat.
111	Tea	161	Wool & Fine An. Hair Spin.
112	Potato Chips & Sim. Prod.	162	Thread of Cotton Fibres
113	Misc.Food, NES	163	Thread of Man-Made Fibres
114	Softdrink Concen.,Syrups	164	Yarn&Thread, Oth.Veg.Fibr
115	Carbonate Bev,Soft Drink	165	Baler & Binder Twine
116	Alcoholic Beverages, Dist	166	Oth. Cordage,Twine & Rope
117	Alcohol, Natural,Ethyl	167	Narrow Fabrics
118	Brewers,Distillers Grains	168	Lace Fabrics, Bobb. & Net
119	Ale, Beer, Stout & Porter	169	Felt Carpet Cushion
120	Wines	170	Carpet&Fabr Rugs,Mats,Etc
121	Tobacco, Processed, Unmfg	171	Textile Dye & Finish Serv
122	Cigarettes	172	Awnings of Cloth & Plast
123	Tobacco Mfg,Ex.Cigarettes	173	Tent,H'ock,Sl. Bags,Sails
124	Footwear,Rubber & Plastic	174	Tarpaulins & Other Covers
125	Tires & Tubes, Pass. Cars	175	Textile Containers
126	Tires & Tubes,Truck,Buses	176	Veget.Textile Fibres, NES
127	Tires & Tubes,NES	177	Misc.Text.Fab,Mat,Inc.Rags
128	Tires, Retread	178	Household Testiles,NES
129	Reclaimed Rubber	179	Laces & Textile Prod.,NES
130	Rubber Belts,Coat Fabrics	180	Hosiery
131	Rubber Sheet Shoe Stk,Etc	181	Fabric,Knitt,Nett,Elastic
132	Hose & Tubing, Rubber	182	Fabrics, Knitted, NES
133	Rubber Waste & Scrap	183	Knitted Wear
134	Rubber End Products, NES	184	Clothing
135	Plast.Pipe Fittings&Sheet	185	Apparel Access.& Oth.Misc
136	Plastic Cont,Bottle Caps	186	Furs, Dressed
137	Prefab. Bldgs,Struct,NES	187	Fur Plates, Mats & Linings
138	Plast.Hose,Pails,Prod,NES	188	Fur Apparel
139	Leather	189	Custom Tailoring
140	Footwear,Ex.Rubber&Plast.	190	Pulpwood Chips
141	Leather Gloves,Mitt,Ex.Sp	191	Lumber & Timber
142	Leather Belt, Shoe Stock	192	Railway Ties
143	Luggage	193	Wood Waste
144	Leath H'bags,Wallets Etc	194	Custom Wood Work&Millwork
145	Yarn, Cotton	195	Veneer & Plywood
146	Yarns Mix,Blend,Cot Waste	196	Millwork(Woodwork)
147	Fabrics,Broad Woven,Cott.	197	Wood Fabric.Mat.,Struct.
148	Tire Corn & Tire Fabrics	198	Prefab Bldgs, Wood
149	Nets & Netting	199	Cont,Closures,Wood Pallets
150	Blank,B'sheets,Towel,Cloths	200	Cask,Coffins,Oth.Mort.Gds

- cont'd -

Table A-2.2 (cont'd)

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
201	Misc. Wood	251	Grind'gBalls, IngotMoulds, Etc
202	Barrels & Kegs of Wood	252	Cast&WroughtIron Pipe&Fittings
203	Wood End Products, NES	253	Nickel in Primary Forms
204	H'hold Furn.,Inc.Camp&Lawn	254	Copp.,Copp. Alloys,Prime Forms
205	Off.Furn.& Vis.Rec.Equip.	255	Lead, Primary Forms
206	Special Purpose Furniture	256	Zinc & inc Alloys, Prim. Forms
207	Misc. Furniture & Fixtures	257	Aluminum&Aluminum Alloys,Prime
208	Port. Lamps Resident.Type	258	Tin&Tin Alloys, Prim. Forms
209	Pulp	259	Prec.Metal&Alloys,Prime Forms
210	Newsprint Paper	260	Oth.Non-Ferrous Base Metals
211	Oth. Paper For Printing	261	Alum. Fluorides & Sodium Alum
212	Fine Paper	262	Inorga. Bases&Met. Oxides,NES
213	Tissue & Sanitary Paper	263	Scrap & Waste Materials, NES
214	Wrapping Paper	264	Alum. & Aluminum Alloys, Cast
215	Paper Board	265	Copp. Prod.Cast,Rolled&Extrud.
216	Bldg. Paper	266	Copp.AlloyProd,Cast,Roll,Extr.
217	Towels,Napkins,Toil.Paper	267	Lead&Lead Alloy,Prod.,Cast,R&E
218	Vanillin	268	Nickel&NickelAlloyFab.Material
219	Misc.Ind.Paper Mat.By-Prod.&Waste	269	Tin & Tin Alloy Fab. Materials
220	Tiles, Vinyl, Asbestos	270	ZincDie Casting&Oth. Zinc Mat.
221	Paper Cartons, Bags,Cans,Bottles	271	Solders Inc, Rods, Wire, Etc
222	Converted Paper Gum, Wax or Prin.	272	Plates, Steel, Fabricated
223	Converted Aluminum Foil	273	Tanks
224	Facial Tissues, & Sanitary Napkins	274	Power Boilers
225	Paper Containers, NES	275	Boilers, Marine, Type
226	Office & Stationery Supplies	276	Beans and Other Struct. Steel
227	Paper End Products	277	Scaffolding Equip. Demountable
228	Newspapers,Magazines,Periodicals	278	Prefab.Bldgs&Struct.MainlyMet.
229	Books,Pamphlets,Maps&Pictures	279	Metal Products, NES
230	Banknotes,Bonds,Drafts, Etc	280	SteelSheet&Strip Coated, Fab.
231	Other Printed Matter	281	Culvert Pipe. Corrugated Metal
232	Advertising Print Media	282	MetalBasic Prod.&Range Boilers
233	Specialized Publishjing Service	283	
234		284	MtlAwnings,Ash Cans,Pails Etc
235	Ferro-Alloys	285	Kitchen Utensils
236	Iron, Steel Ingots	286	Contain. & BottleCaps of Metal
237	Steel, Blooms, Billets & Slabs	287	Wire & Wire Rope of Steel
238	Steel Castings	288	WireFencing, Screening&Netting
239	Steel Bars & Rods	289	Chain,Ex.AutoTire&Power Trans.
240	Steel Plates, not Fabricated	290	Rods, Wire&Electrodes, Welding
241	Carbon Steel Sheets, Not Coated	291	SpringsforUpholstery&Misc.Vih.
242	Tinplate	292	Bolts,Nuts,Screws,Washers,Etc
243	Galvanized Steel, Sheet & Strip	293	Builders Hardware
244	Rails & Rly Track Materials,Steel	294	Fittings,Furn.,Cab.&Caskets
245	Coal Tar	295	Basic Hardware, NES
246	Nat & Syn Graphite & Carbon Prod.	296	Cutting & Forming Tools
247	Mechanical Steel Tubing	297	Measu.,Edging,Mechanics Tools
248	Oil Country Goods	298	Scis.,RazorBlades Ind.Cutlery
249	Line Pipe. Trans, Nat. Gas & Oil	299	Domestic Equipment, NES
250	Steel Pipes & Tubes, NES	300	Heating Eq. HotWater&Steam,Etc

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Table A-2.2 (cont'd)

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
301	Heating Eq.,Warm Air,Ex.Pipes,Etc	351	Snowmob & Misc.Non-Motor Veh.
302	Unit & Water Tank Heat,Non-Elec	352	Pleasure & Sporting Craft
303	Fuel Burning Eq.	353	Small Elec. Applia, Domestic
304	Comm.Appl, Cook & Warming Food	354	Space Heater, Heat Stoves,Etc.
305	Custom Metal Working	355	Refrig, Freezers&Comb.,Domest.
306	Forging of Carbon & Alloy Steel	356	Gas Ranges&Elect.Sto.,Domes.
307	Valves	357	T.V., Radio, Record Players
308	Pipe Fittings, Not Iron & Steel	358	Tel,Teleg.Line Appar.&Equi.
309	Gas Meters & Water Meters	359	Radio&TV Broadt.&Trans.Eq.
310	Fire Fight & Traf. Control Equip.	360	Radar Equip.&Rela Devices
311	Taxi & Park Meters,Blocks,Ladders	361	Elec.Tubes&Semi-Condu.,Etc.
312	Firearms & Military Hardware	362	Elec.Equip. Components
313	Collapsible Tubes, Metal	363	Inte.Signal,AlarmClockSyst.
314	Tractors, Farm & Garden Type	364	Pole Line Hardware
315	Oth. Agricultural Mach.	365	Welding Machinery & Equip.
316	Mechanical Power Trans. Equip	366	Eng., Marine,Elect.Turbines
317	Pumps, Compressors & Blowers, Etc	367	Trans.&Converters,Ex.T&T.
318	Conveyors,Escal,Elev.Hoist Mach.	368	Elec.Equip.,Industrial, NES
319	Ind.Trucks,Tractor,Trailer,Etc	369	Batteries
320	Fans, Air Circulators & Air units	370	Wire & Cable, Insulated
321	Pkg.Mach.Lub.Eq.& Oth.Misc.Mach.	371	Alum.Wire&Cable, NotInsula
322	Indust.Furnaces, Kilns & Ovens	372	EnclosedSafetySwitch, Etc.
323	Mach,Ind.Specified & Spec.Purpose	373	Elec. LightBulbs&Tubes, Etc.
324	Power Driven Hand Tools	374	Elect.LightingFixtures, Etc
325	Metal End Products, NES	375	Cement
326	Refrig & Air Con.Eq.,Ex.Household	376	Lime
327	Scales & Balances	377	Concrete Basic Products
328	Vending Machines	378	Sand, Lime Bricks & Blocks
329	Office Machines & Equipment	379	Ready-Mix Concrete
330	Aircraft, All Types	380	Bricks & Tiles, Clay
331	Aircraft Engines	381	Insula&Elect.Fit,Porcel.
332	Specialized Aircraft Equipment	382	Plum.Equi,VitrousChina,&Etc
333	Modifications, Conversions Serv.	383	Refractories
334	Passenger Autos & Chassis	384	NtralStone,BasicProd,Struc.
335	Trucks, Chassis, Tractors, Com	385	Stone,Clay,Con.,EndProd,NES
336	Buswes & Chassis	386	Plast,Oth.Gypsum, Ba'cProd.
337	Military Motor Veh. Motorcycles	387	Min.Wool,ThermInsul.Mat,NES
338	Mobile Homes	388	Asbestos Products
339	Oth. Trailers & Semi-Trailers,Com	389	Non-Mtl Min.BasicProd.,NES
340	Bodies & Cabs For Trucks	390	Glass, Plate, Sheet, Wool
341	Motor Vehicle Engines & Parts	391	Glass Containers
342	Auxiliary Electric Equipment	392	GlassTblwr.,H'ware,Prod.NES
343	Motor Veh. Access,Parts & Assemb.	393	Abrasive Basic Products
344	Automotive Hardware, Ex. Springs	394	Aviation Gasoline
345	Locomotives,Cars,Tenders,Rly.Serv.	395	Motor Gasoline
346	Self-Propel. Cars	396	Fuel Oil
347	Parts & Access., Rly.Roll Stock	397	Lubgricating Oils & Greases
348	Ships & Boats, Military & Commer.	398	Benzene, Toluene & Xylene
349	Sub-Assemblies, Parts, Etc.,Ships	399	Buta.,Prop.&Oth.Liq.Pet.Gas
350	Ship Repairs	400	Naptha

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Table A-2.2 (cont'd)

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
401	Asphalt & Coal Oils, NES	451	Phenols, Phen. Alcoh & Deriv.
402	Petrochemical Feed Stock	452	Ethers, Alcoh, Peroxides, Etc.
403	Fertilizers	453	Metyl-Ethyl,Aldehyde,Funct,NES
404	Plastic Resins & Mat. Not Shaped	454	Acetone
405	Film & Sheet. Cellulosic Plastic	455	Acetic Acid
406	Ethanolamines	456	Acetic Anhydride
407	Ethylene Glycol., Mono	457	Adipic Acid
408	Pharmaceuticals	458	Citric Acids
409	Paints & Related Products	459	Stearic & Organic Acids
410	Veg.Oils, Oth.Than Corn Oil,Ref.	460	Hexamethylenediamine
411	Glycerin, Refined	461	Sodium Glutamade, Mono.
412	Dentifrices, All Kinds	462	Dicyandiamide
413	Soaps, Detergents, Cleaning Prod.	463	Organo-Inorga Compounds, Etc
414	Industrial Chemical Prep., NES	464	Organic Chemicals, NES
415	Toilet Preparations & Cosmetics	465	Titanium Dioxide
416	Chlorine	466	Black, Acetylene & Carbon
417	Oxygen	467	Pig's, Lakes & Toners, Proper
418	Phosphorus	468	Iron Oxides
419	Chemical Elements, NES	469	Fertisizer Chemicals
420	Sulphuric Acid	470	Synthetic Rubber
421	Carbon Dioxide (Gas & Dry Ice)	471	Antifreeze Compounds
422	Inorganic Acids & Oxygen	472	Addi for Mineral Oils, NES
423	Ammonia, Anhydrous & Aqua	473	Glycerine, Crude
424	Caustic Soda (Sod.Hydroxide), Dry	474	Rubber & Plast,Compound Agents
425	Calcium Chloride	475	Expolosives, Fuses & Caps
426	Sodium Chlorate	476	Ammunition, Non-Military
427	Aluminum Sulphate	477	Ammunition&Ordnance, Military
428	Sodium Phosphates	478	Pyrotechnic Articles&Fireworks
429	Sodium Carbonate (Soda Ash)	479	Crude Veg. Materials&Extracts
430	Sodium Cyanide	480	Phthalic Anhydride
431	Sodium Silicate	481	Agricultural Chemicals
432	Metallic Salts & Peroxysalts, NES	482	Adhesives
433	Photographic & Inorganic Chem,NES	483	Auto Chem. Ex. Antifreeze
434	Ethylene	484	Concrete Additives
435	Butylenes	485	Boiler Chemicals
436	Butadiene	486	Compound Catalysts
437	Acetylene	487	Metal Working Compounds
438	Styrene Monomer	488	Printing & Other Inks
439	Carbon Tetrachloride	489	Textile Specialty Chemicals
440	Vinylchloride, Monomer	490	Polishes, Waxes, Compounds&Etc
441	Trichloroethylene	491	Waxes, Animal&Vegetable, Other
442	Perchloroethylene	492	Essential Oils, Natural, Syn.
443	Fluorinated Halogen Hydrocarbons	493	Tanning Materials & Dyestuffs
444	Hydrocarbons & Their Derivatives	494	Fats & Chemical Mixtures
445	Methyl Alcohol	495	Embalming Chem. & Preparations
446	Propyl & Isopropyl Alcohols	496	Matches
447	Butyl & Isobutyl Alcohols	497	Aircraft&Nautical Instruments
448	Pentaertthritol	498	Lab & Scient'c Apparatus Etc.
449	Alcohols & Their Derivatives	499	Misc. Measures&Control Instr.
450	Phenol	500	Medical & Related Instr, Etc

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Table A-2.2 (cont'd)

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
501	Ind.Military & Civil Safety Equip.	551	Repair Service
502	Watches, Clocks, Chronometers,Etc.	552	Rental of Office Equipment
503	Photographic Eq.& Suppl.Inc.Film	553	Retailing Margins
504	Jewelry Findings,Met.& Gem Stones	554	Imputed Service, Banks
505	Plated & Silverware Cutlery, Etc.	555	Oth.RealEst.(Non-Rent)&Fin.Serv.
506	Brooms,Brushes,Mops,Oth.Clean Eq.	556	Insurance & W.C.B.
507	Bicycles, Childrens, Veh. & Parts	557	Imputed Rent, Owner Occpd.Dwell.
508	Sporting, Fishing & Hunting Equip.	558	Cash Residential Rent
509	Toys & Game Sets	559	Other Rent
510	Fabrics, Impreg.Ex.Rubber Coated	560	Govt. Royalties on Nat.Resources
511	Tiling, Rubber , Plastic	561	Education Services
512	Advertising Goods	562	Hospital Services
513	Shades & Blinds	563	Health Services
514	Fur Dressing & Dyeing Services	564	Motion Picture Entertainment
515	Custom Work, Miscellaneous	565	Other Recreational Services
516	Ice	566	Services to Business Management
517	Animal Hair, Feathers, Quills,Etc.	567	Advertising Services
518	Misc. Fab.Mat., Incl.Bristles,Etc.	568	Laundry,Cleaning&Pressing Serv.
519	Buttons,Needles,Pins,Misc.Notion	569	Accommodation Services
520	Phono Records & Artist Material	570	Meals
521	Household Ornamental Obj. & Art	571	Serv.Marg. on Alcoh.Beverages
522	Repair Construction	572	Personal Services
523	Residential Construction	573	Photographic sefvices
524	Non-Residential Construction	574	Services to Bldgs. & Dwellings
525	Road Highwqy, Airstrip Constr.	575	Rental, Data Processing Equip
526	Gas & Oil Facility Constr.	576	Other Serv. to Business&Persons
527	Dams & Irrigation Projects	577	Rental of Automobiles & Trucks
528	Railway,Phone,Telegraph Constr.	578	Trade Association Dues
529	Oth. Engineering Constr.	579	Rental Mach.&Eq.Inc.Constr.Mach.
530	Air Transportation	580	SpareParts,Maint.Suppl.Mach.&Eq.
531	Other Transportation	581	Office Supplies
532	Serv. Incidental to Transport,NES	582	Cafeteria Supplies
533	Water Transportation	583	Transportation Margins
534	Serv. Incidental To Water Trans.	584	Laoratory Equip. & Supplies
535	Railway Transportation	585	Travelling & Entertainment
536	Truck Transportation	586	Advertising & Promotion
537	Bus Transport. Interurban & Rural	587	Purch. Repair Serv.,Mach.&Equip.
538	Urban Transit	588	Coton Raw & Semi-Processed
539	Taxicab Transportation	589	Natural Rubber & Allied Gums
540	Pipeline transportation	590	Sugar, Raw
541	Highway & Bridge Maintenance	591	Cocoa Beans, Unroasted

- cont'd -

Table A-2.2 (cont'd)

LIST OF COMMODITIES, AGRICULTURE CANADA INPUT-OUTPUT MODEL, 1981

No.	COMMODITY	No.	COMMODITY
542	Storage	592	Green Coffee
543	Radio & Television Broadcasting	593	Tropical Fruit
544	Telephone & Telegraph	594	Unallocated Imports & Exports
545	Postal Services	595	Government Goods & Serv.
546	Electric Power	596	Commodity Indirect Taxes
547	Gas Distribution	597	Subsidies
548	Coke	598	Other Indirect Taxes
549	Water & Other Utilities	599	Wages & Salaries
550	Wholesaling Margins	600	Supplementary Labour Income
601	Net Income, Unincorp. Business	602	Other Operating Surplus

Table A 7.1

DISTRIBUTION OF THE INPUT PURCHASES OF THE DISAGGREGATED AGRICULTURE SECTOR BY COMMODITY

Commodity	Dairy Farms	Cattle Farms	Hogs Farms	Poultry Farms	Wheat Farms	Small Grains Farms	Field Crops & Farms	Fruit & Veg. Farms	Misc. Spec. Farms	Live-stock Comb. Farms	Field Crop Comb. Farms	Other Comb. Farms	Total
1 cattle and calves	24.13%	52.99%	1.15%	0.43%	6.60%	8.57%	0.25%	0.11%	0.18%	4.21%	0.10%	1.31%	100%
2 hogs	4.18%	5.52%	72.17%	1.88%	1.09%	3.56%	0.18%	0.08%	0.07%	10.20%	0.24%	0.82%	100%
3 poultry	1.40%	2.08%	1.59%	HG.60%	1.20%	1.49%	0.14%	0.15%	0.11%	4.78%	0.04%	0.41%	100%
7 wheat unmilled	1.43%	5.97%	0.85%	0.33%	66.01%	20.62%	0.49%	0.08%	0.06%	2.82%	0.18%	1.16%	100%
8 barley,oats,rye,corn,grain,nes	8.89%	15.30%	5.39%	0.94%	14.65%	45.48%	1.20%	0.38%	0.26%	5.52%	0.38%	1.62%	100%
11 vegetables fresh	2.49%	1.73%	0.79%	0.26%	0.10%	1.08%	79.37%	3.08%	0.19%	3.49%	5.75%	1.67%	100%
15 hay, forage and straw	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
16 seeds ex. oil and seed grades	16.35%	12.09%	4.27%	1.28%	11.94%	27.39%	5.95%	4.69%	10.72%	3.06%	0.70%	1.56%	100%
18 oil, seeds, nuts and kernels	16.35%	12.09%	4.27%	1.28%	11.94%	27.39%	5.95%	4.69%	10.72%	3.06%	0.70%	1.56%	100%
21 serv. incidental to agr.&fores	20.71%	26.66%	16.55%	1.39%	9.19%	14.82%	2.25%	1.69%	1.26%	3.88%	0.43%	1.17%	100%
23 logs and bolts	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
47 coal	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
51 natural gas	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
53 salt	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
55 peatmoss	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
58 stone,crude	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
61 feeds of animal origin nes	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
63 custom work meat & food	17.11%	21.04%	5.02%	1.70%	15.35%	24.89%	4.35%	3.29%	2.40%	2.71%	0.67%	1.46%	100%
65 primary or concentrated feeds	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
66 feed for commercial livestock	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
67 feeds, grain origin, nes	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
68 feeds of vegetable origin nes	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
69 pet feeds	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
101 beet pulp	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
104 oilseed,meal & cake	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100%
127 tires & tubes nes	17.67%	22.69%	3.23%	1.08%	22.65%	20.74%	2.28%	2.12%	1.67%	4.09%	0.27%	1.51%	100%
130 plastic containers&bottle caps	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
165 bales and binder twine	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
166 other cordage, twine & rope	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
175 textile containers	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
190 containers, closures&wood pail	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
221 paper cartons,bags,cans&bottle	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
225 paper containers,nes	21.39%	12.30%	4.79%	0.94%	5.81%	18.65%	12.45%	8.88%	1.04%	3.29%	3.24%	7.23%	100%
287 wire and wire rope, of steel	23.07%	20.59%	6.54%	3.89%	12.58%	15.46%	3.72%	2.49%	4.93%	4.86%	0.35%	1.52%	100%
288 wire fencing,screening&netting	23.07%	20.59%	6.54%	3.89%	12.58%	15.46%	3.72%	2.49%	4.93%	4.86%	0.35%	1.52%	100%
111 tractors, farm & garden type	18.38%	22.19%	3.70%	1.37%	19.71%	19.90%	3.22%	3.51%	2.32%	3.76%	0.32%	1.51%	100%
115 other agricultural machinery	10.81%	23.29%	2.65%	0.72%	26.23%	21.64%	1.14%	0.42%	0.88%	4.48%	0.22%	1.50%	100%
141 modifications, conversions, re	23.07%	20.59%	6.54%	3.89%	12.58%	15.46%	3.72%	2.49%	4.93%	4.86%	0.35%	1.52%	100%
175 tires	14.17%	12.04%	4.17%	0.96%	15.97%	36.62%	5.84%	2.66%	1.59%	3.77%	0.71%	1.49%	100%
183 aviation gasoline	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
185 motor gasoline	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
186 fuel oil	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
187 lubricating oils and greases	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
188 butane, propane&other liq.pet.	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
193 fertilizers	14.17%	12.04%	4.17%	0.96%	15.97%	36.62%	5.84%	2.66%	1.59%	3.77%	0.71%	1.49%	100%
194 pharmaceuticals	24.21%	32.13%	27.73%	1.08%	3.20%	5.04%	0.21%	0.14%	0.16%	5.01%	0.20%	0.89%	100%
195 ammonia, anhydrous and aqua	14.17%	12.04%	4.17%	0.96%	15.97%	36.62%	5.84%	2.66%	1.59%	3.77%	0.71%	1.49%	100%
197 fertilizer chemicals	14.17%	12.04%	4.17%	0.96%	15.97%	36.62%	5.84%	2.66%	1.59%	3.77%	0.71%	1.49%	100%
171 antifreeze compounds	6.26%	7.63%	3.38%	0.96%	23.10%	35.39%	9.04%	7.16%	1.65%	3.20%	0.87%	1.36%	100%
198 agricultural chemicals	6.26%	7.63%	3.38%	0.96%	23.10%	35.39%	9.04%	7.16%	1.65%	3.20%	0.87%	1.36%	100%
199 automotive chem. ex. antifreez	16.08%	21.42%	4.70%	2.25%	19.49%	19.81%	3.15%	3.88%	3.95%	3.42%	0.26%	1.62%	100%
222 repair construction	23.07%	20.59%	6.54%	3.89%	12.58%	15.46%	3.72%	2.49%	4.93%	4.86%	0.35%	1.52%	100%
532 serv. incidental to transport	15.86%	15.69%	7.95%	6.07%	14.02%	24.82%	4.30%	2.31%	2.62%	4.09%	0.68%	1.58%	100%
540 truck transportation	15.86%	15.69%	7.95%	6.07%	14.02%	24.82%	4.30%	2.31%	2.62%	4.09%	0.68%	1.58%	100%
610 pipeline transportation	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
642 storage	9.19%	14.02%	4.82%	0.93%	19.01%	40.83%	1.76%	0.92%	1.61%	4.95%	0.40%	1.57%	100%
744 telephone & telegraph	17.31%	15.17%	5.93%	2.54%	12.15%	16.55%	8.07%	6.56%	3.11%	3.95%	2.25%	6.43%	100%
645 postal services	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
646 electric power	23.40%	16.85%	11.08%	5.86%	11.31%	13.61%	3.36%	2.71%	5.37%	4.72%	0.31%	1.42%	100%
647 gas distribution	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100%
649 water and other utilities	23.40%	16.85%	11.08%	5.86%	11.31%	13.61%	3.36%	2.71%	5.37%	4.72%	0.31%	1.42%	100%
650 wholesaling margins	16.62%	15.52%	9.24%	7.41%	13.87%	21.81%	4.48%	2.29%	2.67%	4.08%	0.65%	1.46%	100%
653 retailing margins	16.86%	20.90%	11.97%	2.06%	14.16%	19.98%	3.44%	1.99%	2.42%	4.28%	0.60%	1.46%	100%
661 imputed service banks	10.48%	20.76%	5.81%	4.02%	20.22%	18.88%	4.85%	3.80%	8.24%	1.86%	0.12%	0.96%	100%
665 oth. real est (non-rent)&fin.s	11.63%	19.06%	3.57%	1.92%	22.90%	25.77%	3.32%	3.11%	2.80%	3.81%	0.34%	1.77%	100%
676 insurance & W.C.B.	19.56%	12.31%	4.22%	6.63%	6.53%	9.16%	10.14%	13.10%	14.91%	2.02%	0.65%	1.75%	100%
679 other rent	10.55%	16.15%	3.30%	1.31%	19.71%	33.02%	4.69%	3.59%	2.23%	2.92%	0.82%	1.71%	100%
696 services to business management	14.22%	16.85%	4.81%	1.82%	13.53%	16.94%	9.03%	4.43%	7.31%	3.65%	2.25%	5.17%	100%
675 rental data processing equip.	14.22%	16.85%	4.81%	1.82%	13.53%	16.94%	9.03%	4.43%	7.31%	3.65%	2.25%	5.17%	100%
676 other serv. to business&person	14.22%	16.85%	4.81%	1.82%	13.53%	16.94%	9.03%	4.43%	7.31%	3.65%	2.25%	5.17%	100%
677 rental of automobiles & trucks	17.11%	21.04%	5.02%	1.70%	15.35%	24.89%	4.35%	3.29%	2.40%	2.71%	0.67%	1.46%	100%
678 trade association dues	20.71%	26.66%	16.55%	1.39%	9.19%	14.82%	2.25%	1.69%	1.26%	3.88%	0.43%	1.17%	100%
679 rental mach&eq incl. const.mac	17.11%	21.04%	5.02%	1.70%	15.35%	24.89%	4.35%	3.29%	2.40%	2.71%	0.67%	1.46%	100%
680 spare parts&maint. suppl. mach	16.15%	17.82%	3.81%	1.81%	22.35%	22.42%	3.75%	2.79%	2.61%	4.50%	0.51%	1.47%	100%
681 office supplies	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
701 transportation margins	15.86%	15.69%	7.95%	6.07%	14.02%	24.82%	4.30%	2.31%	2.62%	4.09%	0.68%	1.58%	100%
705 travelling and entertainment	5.00%	22.47%	3.00%	1.50%	12.00%	27.47%	2.56%	6.00%	5.00%	5.00%	5.00%	5.00%	100%
707 purchased repair ser. for mach	16.15%	17.82%	3.81%	1.81%	22.35%	22.42%	3.75%	2.79%	2.61%	4.50%	0.51%	1.47%	100%
715 government goods & services	31.49%	14.84%	10.93%	1.15%	15.92%	11.76%	2.32%	4.19%	1.39%	4.31%	0.37%	1.32%	100%
716 commodity indirect taxes	12.56%	17.60%	4.31%	2.84%	21.84%	22.08%	4.38%	2.65%	5.49%	4.06%	0.47%	1.72%	100%
717 subsidies	31.49%	14.84%	10.93%	1.15%	15.92%	11.76%	2.32%	4.19%	1.39%	4.31%	0.37%	1.32%	100%
718 other indirect taxes	11.63%	19.06%	3.57%	1.92%	22.90%	25.77%	3.32%	3.11%	2.80%	3.81%	0.34%	1.77%	100%
749 wages and salaries	16.89%	12.11%	4.25%	6.38%	6.54%	9.71%	11.60%	11.74%	16.44%	1.89%	0.81%	1.64%	100%
800 supplementary labour income	18.67%	18.12%	4.43%	2.96%	17.07%	15.79%	4.92%	6.18%	6.84%	2.99%	0.36%	1.67%	100%
801 net income unincorp business	23.63%	12.76%	2.88%	2.09%	26.90%	18.93%	3.76%	2.61%	1.97%	2.76%	0.48%	1.28%	100%
802 other operating surplus	15.29%	14.33%	9.70%	7.70%	36.65%	3.43%	4.91%	1.61%	1.09%	4.95%	0.19%	0.24%	100%

Table A-3.2
DOLLAR VALUE OF THE INPUT PURCHASES OF THE DISAGGREGATED
AGRICULTURE SECTOR BY COMMODITY
(in '000's of Dollars)

	Commodities	Dairy Farms	Cattle Farms	Hogs Farms	Poultry Farms	Wheat Farms	Small Grains Farms	Field Crop Farms	Fruit & Veg. Farms	Misc. Spec. Farms	Live-stock Comb. Farms	Field Crop Comb. Farms	Other Comb. Farms	Total
1	cattle and calves	$87,815	$192,667	$4,191	$1,567	$23,643	$31,200	$318	$409	$661	$15,310	$667	$1,763	$361,030
3	hogs	$585	$773	$10,104	$263	$153	$499	$26	$12	$9	$1,128	$34	$115	$14,000
4	poultry	$154	$229	$175	$9,526	$132	$163	$16	$17	$12	$526	$1	$16	$11,000
7	wheat unmilled	$215	$896	$128	$50	$9,901	$3,093	$74	$12	$3	$423	$27	$171	$15,000
8	barley,oats,rye,corn,grain,nes	$9,635	$16,673	$5,870	$1,022	$15,966	$49,574	$1,300	$415	$296	$6,020	$410	$1,703	$109,000
14	vegetables fresh	$945	$659	$299	$100	$38	$411	$30,161	$1,169	$71	$1,125	$2,186	$634	$38,200
15	hay, forage and straw	$1,265	$879	$1,062	$1,101	$81	$182	$20	$11	$107	$230	$8	$54	$5,000
16	seeds ex. oil and seed grades	$13,244	$9,795	$3,455	$1,035	$9,675	$22,105	$4,818	$2,797	$4,682	$2,479	$548	$1,267	$81,000
18	oil,seeds,nuts and kernels	$4,742	$3,507	$1,237	$371	$3,464	$7,943	$1,725	$1,359	$1,138	$887	$203	$454	$29,000
23	serv. incidental to agr.&for.	$55,924	$71,982	$44,691	$3,745	$24,800	$40,014	$6,068	$1,575	$3,112	$10,477	$1,160	$3,152	$270,000
24	logs and bolts	$50	$225	$30	$15	$120	$275	$26	$60	$50	$50	$50	$50	$1,000
37	coal	$580	$882	$194	$136	$1,143	$1,140	$216	$124	$105	$201	$21	$78	$5,000
39	natural gas	$812	$1,235	$272	$190	$1,601	$1,596	$302	$174	$149	$282	$29	$109	$7,000
44	salt	$200	$899	$120	$60	$480	$1,099	$102	$240	$200	$200	$200	$200	$4,000
45	potassa	$50	$225	$30	$15	$120	$275	$26	$60	$50	$50	$50	$50	$1,000
50	stone,crude	$600	$2,696	$360	$180	$1,440	$3,296	$307	$720	$600	$600	$600	$600	$12,000
61	feeds of animal origin nes	$253	$176	$212	$220	$16	$36	$4	$2	$21	$46	$2	$11	$1,000
64	custom work meat & food	$1,711	$2,104	$502	$170	$1,535	$2,489	$435	$329	$240	$271	$67	$146	$10,000
85	primary or concentrated feeds	$50,080	$34,797	$42,066	$43,600	$3,219	$7,197	$784	$454	$1,221	$9,122	$330	$2,125	$198,000
86	feed for commercial livestock	$406,205	$282,240	$341,200	$353,644	$26,109	$58,377	$6,360	$3,684	$31,233	$73,992	$2,721	$17,233	$1,606,000
87	feeds, grain origin, nes	$10,370	$7,205	$8,711	$9,028	$667	$1,490	$162	$94	$874	$1,889	$70	$440	$41,000
88	feeds of vegetable origin nes	$759	$527	$637	$661	$49	$109	$12	$7	$64	$138	$5	$32	$3,000
89	pet feeds	$700	$3,146	$420	$210	$1,680	$3,846	$358	$840	$700	$700	$700	$700	$14,000
100	beet pulp	$506	$351	$425	$440	$33	$73	$8	$5	$13	$92	$3	$21	$2,000
103	oilseed,meal & cake	$22,005	$15,289	$18,483	$19,158	$1,414	$3,162	$345	$200	$1,854	$4,008	$147	$934	$87,000
127	tires & tubes nes	$7,599	$9,755	$1,388	$464	$9,741	$8,917	$981	$911	$719	$1,758	$118	$648	$43,000
130	plastic containers&bottle caps	$856	$492	$191	$28	$232	$716	$498	$355	$42	$132	$129	$289	$4,000
165	baler and binder twine	$5,133	$2,953	$1,149	$226	$1,394	$4,476	$2,988	$2,131	$249	$790	$777	$1,735	$24,000
166	other cordage, twine & rope	$1,497	$861	$335	$66	$407	$1,305	$871	$622	$73	$230	$227	$506	$7,000
175	textile containers	$642	$369	$144	$28	$174	$559	$373	$266	$31	$99	$97	$217	$3,000
199	containers, closures&wood pallet	$1,497	$861	$335	$66	$407	$1,305	$871	$622	$73	$230	$227	$506	$7,000
221	paper cartons,bags,can&bottles	$856	$492	$191	$38	$232	$746	$498	$355	$42	$132	$129	$289	$4,000
225	paper containers,nes	$1,069	$615	$239	$47	$290	$932	$622	$444	$52	$165	$162	$361	$5,000
287	wire and wire rope, of steel	$11,074	$9,884	$3,140	$1,865	$6,038	$7,422	$1,784	$1,194	$2,365	$2,332	$170	$730	$48,000
288	wire fencing,screening&netting	$6,460	$5,766	$1,832	$1,088	$3,522	$4,330	$1,041	$696	$1,380	$1,361	$99	$426	$28,000
314	tractors, farm & garden type	$13,235	$15,975	$2,667	$988	$14,194	$14,393	$2,319	$2,530	$1,670	$2,710	$231	$1,088	$72,000
315	other agricultural machinery	$14,958	$20,731	$2,358	$644	$23,342	$19,264	$1,017	$377	$787	$3,989	$191	$1,339	$89,000
333	modifications, conversions, serv	$923	$824	$262	$155	$503	$619	$149	$99	$107	$194	$11	$61	$1,000
376	lime	$1,700	$1,445	$501	$116	$1,917	$4,395	$701	$319	$190	$453	$86	$179	$12,000
394	aviation gasoline	$580	$882	$194	$136	$1,143	$1,140	$216	$124	$265	$201	$21	$78	$5,000
395	motor gasoline	$35,501	$54,000	$11,883	$8,323	$69,975	$69,759	$13,208	$7,609	$17,422	$12,317	$1,259	$1,744	$306,000
396	fuel oil	$64,041	$97,412	$21,435	$15,015	$126,229	$125,840	$23,827	$13,725	$31,427	$22,219	$2,271	$4,558	$552,000
397	lubricating oils and greases	$12,006	$18,353	$4,039	$2,829	$23,782	$23,709	$4,489	$2,588	$5,921	$4,186	$428	$1,612	$104,000
399	butane, propane&other liq.pet.ga	$1,276	$1,941	$427	$299	$2,515	$2,508	$475	$274	$626	$443	$45	$171	$11,000
403	fertilizers	$32,885	$27,932	$9,684	$2,237	$37,000	$84,969	$13,546	$6,161	$3,679	$9,752	$1,657	$3,458	$232,000
408	pharmaceuticals	$8,959	$11,890	$10,260	$400	$1,184	$1,864	$78	$53	$59	$1,855	$72	$327	$37,000
423	ammonia, anhydrous and aqua	$5,950	$5,057	$1,753	$405	$6,709	$15,382	$2,452	$1,115	$666	$1,584	$300	$626	$42,000
469	fertilizer chemicals	$79,045	$67,181	$23,292	$5,381	$89,135	$204,366	$32,579	$14,818	$8,050	$21,050	$3,986	$8,318	$558,000
471	antifreeze compounds	$250	$305	$135	$39	$924	$1,415	$361	$287	$66	$128	$35	$55	$4,000
481	agricultural chemicals	$26,773	$32,680	$14,475	$4,128	$98,873	$151,449	$38,676	$30,656	$7,053	$13,675	$3,744	$5,840	$428,000
483	automotive chem. ex. antifreeze	$161	$214	$47	$22	$195	$198	$31	$39	$30	$34	$3	$16	$1,000
522	repair construction	$72,443	$64,657	$20,541	$12,203	$39,499	$48,555	$11,672	$7,810	$15,472	$15,258	$1,112	$4,778	$314,000
532	serv. incidental to transport ne	$1,110	$1,098	$557	$425	$981	$1,738	$301	$162	$184	$287	$48	$110	$7,000
536	truck transportation	$1,745	$1,725	$875	$667	$1,542	$2,731	$473	$254	$290	$450	$75	$174	$11,000
540	pipeline transportation	$1,270	$1,941	$427	$299	$2,515	$2,508	$475	$274	$626	$443	$45	$171	$11,000
542	storage	$3,031	$4,627	$1,592	$306	$6,272	$13,475	$579	$303	$232	$1,634	$132	$518	$33,000
544	telephone & telegraph	$12,118	$10,617	$4,164	$1,776	$8,502	$11,582	$5,646	$4,592	$2,176	$2,765	$1,574	$4,498	$70,000
545	postal services	$350	$1,573	$210	$105	$840	$1,923	$179	$420	$350	$350	$350	$350	$7,000
546	electric power	$52,414	$37,744	$24,827	$13,132	$25,325	$30,477	$7,527	$6,072	$12,021	$10,583	$607	$3,192	$224,000
547	gas distribution	$232	$353	$78	$54	$457	$456	$86	$50	$114	$81	$8	$31	$2,000
549	water and other utilities	$2,574	$1,853	$1,219	$645	$1,244	$1,497	$370	$298	$590	$520	$34	$156	$11,000
550	wholesaling margins	$84,100	$78,533	$46,734	$37,493	$70,201	$110,349	$22,650	$11,597	$13,527	$20,666	$2,788	$7,364	$506,000
553	retailing margins	$14,664	$18,179	$10,416	$1,789	$12,318	$17,379	$2,995	$1,731	$2,103	$3,720	$439	$1,267	$87,000
554	imputed service banks	$7,231	$14,324	$4,009	$2,774	$13,952	$13,027	$3,347	$2,622	$5,686	$1,283	$83	$662	$69,000
555	oth.*real est (non-rent)&fin.ser	$3,373	$5,527	$1,035	$557	$6,641	$7,473	$963	$902	$812	$1,105	$99	$513	$29,000
556	insurance & W.C.B.	$9,781	$6,153	$2,112	$2,816	$3,266	$4,582	$5,069	$6,651	$7,453	$1,010	$327	$877	$50,000
559	other rent	$64,692	$98,999	$20,229	$8,030	$120,822	$202,412	$28,750	$22,007	$13,670	$17,900	$5,027	$10,464	$613,000
566	services to business management	$6,398	$7,581	$2,163	$820	$6,091	$7,022	$4,065	$1,992	$3,288	$1,642	$1,010	$2,328	$45,000
575	rental data processing equip.	$142	$168	$48	$18	$135	$169	$90	$44	$73	$36	$22	$52	$1,000
576	other serv. to business&persons	$142	$168	$48	$18	$135	$169	$90	$44	$73	$36	$22	$52	$1,000
577	rental of automobiles & trucks	$855	$1,052	$251	$85	$767	$1,245	$210	$165	$120	$136	$34	$73	$5,000
578	trade association dues	$1,243	$1,600	$983	$83	$551	$889	$135	$102	$76	$233	$26	$70	$6,000
579	rental machieq incl. const.mac	$3,602	$4,418	$1,055	$358	$3,223	$5,228	$914	$691	$504	$570	$141	$306	$21,000
580	spare parts&maint. suppl. machie	$64,454	$71,098	$15,210	$7,202	$89,162	$89,445	$14,909	$11,133	$10,416	$17,975	$2,054	$5,881	$399,000
581	office supplies	$750	$3,371	$450	$225	$1,800	$4,121	$384	$900	$750	$750	$750	$750	$15,000
583	transportation margins	$30,137	$29,802	$15,105	$11,624	$26,637	$47,164	$8,178	$4,391	$4,986	$7,779	$1,300	$2,997	$190,000
585	travelling and entertainment	$50	$225	$30	$15	$120	$275	$26	$60	$50	$50	$50	$50	$1,000
587	purchased repair ser. for machie	$30,854	$34,034	$7,281	$3,448	$42,082	$42,817	$7,166	$5,329	$4,986	$8,604	$983	$2,815	$191,000
595	government goods & services	$5,353	$2,523	$1,858	$195	$2,707	$1,993	$395	$712	$230	$733	$64	$224	$17,000
596	commodity indirect taxes	$12,556	$17,601	$4,311	$2,837	$21,845	$22,077	$4,379	$2,052	$5,491	$4,060	$472	$1,710	$100,000
597	subsidies	($330,339)	($155,714)	($114,638)	($12,017)	($167,047)	($123,381)	($24,384)	($43,947	($14,564)	($45,227)	($3,924)	($13,818)	($1,049,000)
598	other indirect taxes	$82,806	$135,707	$25,418	$13,670	$163,048	$183,482	$23,638	$22,143	$19,936	$27,127	$2,421	$12,602	$712,000
599	wages and salaries	$215,833	$154,816	$54,303	$81,476	$83,626	$124,129	$148,236	$150,033	$210,069	$24,149	$10,326	$20,997	$1,278,000
600	supplementary labour income	$12,135	$11,775	$2,879	$1,921	$11,099	$10,266	$3,199	$4,019	$4,443	$1,916	$233	$1,083	$65,000
601	net income unincorp business	$902,430	$487,304	$109,987	$79,817	$1,027,311	$722,937	$143,594	$99,676	$75,234	$105,404	$17,186	$38,119	$3,819,000
602	other operating surplus	$807,543	$756,987	$512,497	$406,812	$1,915,947	$181,310	$254,277	$84,859	$57,398	$261,624	$9,854	$12,805	$5,262,000
		$3,182,506	$2,951,529	$1,375,495	$1,171,129	$4,211,814	$2,784,800	$879,881	$517,782	$603,121	$777,451	$92,499	$711,676	$18,761,000

Table A-3.3
DISTRIBUTION OF THE INPUT PURCHASES OF THE DISAGGREGATED AGRICULTURE SECTOR EXPENSES WITHIN FARM TYPE

	Commodity	Dairy Farms	Cattle Farms	Hog Farms	Poultry Farms	Wheat Farms	Small Grain Farms	Field Crop Farms	Fruit & Veg. Farms	Misc. Spec. Farms	Live stock Comb. Farms	Field Crop Comb. Farms	Other Comb. Farms	TOTAL
1	cattle and calves	2.76%	6.53%	0.30%	0.13%	0.56%	1.12%	0.10%	0.08%	0.11%	2.10%	0.79%	2.25%	1.95%
3	hogs	0.02%	0.03%	0.73%	0.02%	.00%	0.02%	.00%	.00%	.00%	0.20%	0.04%	0.05%	0.07%
4	poultry	.00%	0.01%	0.01%	0.81%	.00%	0.01%	.00%	.00%	.00%	0.07%	0.01%	0.02%	0.06%
7	wheat unmilled	0.01%	0.03%	0.01%	.00%	0.24%	0.11%	0.01%	.00%	.00%	0.06%	0.05%	0.08%	0.05%
8	barley,oats,rye,corn,grain,nes	0.30%	0.56%	0.43%	0.09%	0.38%	1.76%	0.15%	0.08%	0.05%	0.83%	0.50%	0.83%	0.58%
11	vegetables fresh	0.03%	0.02%	0.02%	0.01%	.00%	0.01%	0.11%	0.23%	0.01%	0.10%	2.65%	0.30%	0.20%
12	hay, forage and straw	0.04%	0.03%	0.06%	0.09%	.00%	0.01%	.00%	.00%	0.02%	0.03%	0.01%	0.03%	0.05%
16	seeds ex. oil and seed grades	0.42%	0.33%	0.25%	0.09%	0.23%	0.60%	0.55%	0.73%	1.44%	0.33%	0.60%	0.60%	0.42%
18	oil,seeds,nuts and kernels	0.15%	0.12%	0.09%	0.03%	0.08%	0.29%	0.20%	0.26%	0.52%	0.12%	0.25%	0.21%	0.16%
23	serv. incidental to agr.&fores	1.76%	2.44%	3.25%	0.32%	0.59%	1.44%	0.09%	0.88%	0.57%	1.44%	1.40%	1.40%	1.44%
24	logs and bolts	.00%	0.01%	.00%	.00%	.00%	0.01%	.00%	0.01%	0.01%	0.01%	0.06%	0.02%	0.01%
37	coal	0.02%	0.03%	0.01%	0.01%	0.03%	0.04%	0.02%	0.02%	0.05%	0.03%	0.02%	0.04%	0.02%
39	natural gas	0.03%	0.04%	0.02%	0.02%	0.04%	0.06%	0.03%	0.03%	0.07%	0.04%	0.03%	0.05%	0.04%
44	salt	0.01%	0.03%	0.01%	0.01%	0.01%	0.04%	0.01%	0.05%	0.03%	0.03%	0.24%	0.09%	0.02%
45	peatmoss	.00%	0.01%	.00%	.00%	.00%	0.01%	.00%	0.01%	0.01%	0.01%	0.06%	0.02%	0.01%
50	stone,crude	0.02%	0.09%	0.03%	0.02%	0.03%	0.12%	0.03%	0.14%	0.10%	0.08%	0.73%	0.28%	0.06%
61	feeds of animal origin nes	0.01%	0.01%	0.02%	0.02%	.00%	.00%	.00%	.00%	.00%	0.01%	.00%	0.01%	0.01%
64	custom work meat & food	0.05%	0.07%	0.04%	0.01%	0.04%	0.09%	0.05%	0.06%	0.04%	0.04%	0.08%	0.07%	0.05%
85	primary or concentrated feeds	1.57%	1.18%	3.06%	3.72%	0.08%	0.26%	0.09%	0.09%	0.70%	1.25%	0.41%	1.00%	1.06%
86	feed for commercial livestock	12.76%	9.56%	24.80%	30.14%	0.62%	2.10%	0.72%	0.71%	5.67%	10.17%	3.30%	8.14%	8.59%
87	feeds, grain origin, nes	0.33%	0.24%	0.63%	0.77%	0.02%	0.05%	0.02%	0.02%	0.14%	0.26%	0.08%	0.21%	0.22%
88	feeds of vegetable origin nes	0.02%	0.02%	0.05%	0.06%	.00%	.00%	.00%	.00%	0.01%	0.02%	0.01%	0.02%	0.02%
89	pet feeds	0.02%	0.11%	0.03%	0.02%	0.04%	0.14%	0.04%	0.16%	0.12%	0.10%	0.85%	0.33%	0.07%
100	beet pulp	0.02%	0.01%	0.03%	0.04%	.00%	.00%	.00%	.00%	0.01%	0.01%	.00%	0.01%	0.01%
103	oilseed,meal & cake	0.69%	0.52%	1.34%	1.63%	0.03%	0.11%	0.01%	0.04%	0.31%	0.55%	0.18%	0.44%	0.47%
127	tires & tubes nes	0.24%	0.33%	0.10%	0.04%	0.23%	0.32%	0.11%	0.18%	0.12%	0.24%	0.14%	0.31%	0.23%
136	plastic containers&bottle caps	0.03%	0.02%	0.01%	.00%	0.01%	0.03%	0.06%	0.07%	0.01%	0.02%	0.16%	0.14%	0.02%
165	baler and binder twine	0.16%	0.10%	0.08%	0.02%	0.03%	0.16%	0.34%	0.41%	0.04%	0.11%	0.94%	0.82%	0.13%
166	other cordage, twine & rope	0.05%	0.03%	0.02%	0.01%	0.01%	0.05%	0.10%	0.12%	0.01%	0.03%	0.27%	0.24%	0.04%
175	textile containers	0.02%	0.01%	0.01%	.00%	.00%	0.02%	0.04%	0.05%	0.01%	0.01%	0.12%	0.10%	0.02%
199	containers, closures&wood pail	0.05%	0.03%	0.02%	0.01%	0.01%	0.05%	0.10%	0.12%	0.01%	0.03%	0.27%	0.24%	0.04%
221	paper cartons,bags,cans&bottle	0.03%	0.02%	0.01%	.00%	0.01%	0.03%	0.06%	0.07%	0.01%	0.02%	0.16%	0.14%	0.02%
225	paper containers,nes	0.03%	0.02%	0.02%	.00%	0.01%	0.03%	0.07%	0.09%	0.01%	0.02%	0.20%	0.17%	0.03%
287	wire and wire rope, of steel	0.35%	0.33%	0.23%	0.16%	0.14%	0.27%	0.20%	0.23%	0.39%	0.32%	0.21%	0.35%	0.26%
288	wire fencing,screening&netting	0.20%	0.20%	0.13%	0.09%	0.08%	0.16%	0.12%	0.13%	0.23%	0 19%	0.12%	0.20%	0.15%
314	tractors, farm & garden type	0.42%	0.54%	0.19%	0.08%	0.34%	0.52%	0.26%	0.49%	0.28%	0.37%	0.28%	0.51%	0.38%
315	other agricultural machinery	0.47%	0.70%	0.17%	0.05%	0.55%	0.69%	0.12%	0.07%	0.13%	0.55%	0.23%	0.63%	0.48%
333	modifications, conversions, se	0.03%	0.03%	0.02%	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	0.03%	0.02%	0.03%	0.02%
376	lime	0.05%	0.05%	0.04%	0.01%	0.05%	0.16%	0.08%	0.06%	0.03%	0.06%	0.10%	0.08%	0.06%
391	aviation gasoline	0.02%	0.03%	0.01%	0.01%	0.03%	0.04%	0.02%	0.02%	0.05%	0.03%	0.02%	0.04%	0.03%
395	motor gasoline	1.12%	1.83%	0.86%	0.71%	1.66%	2.51%	1.50%	1.47%	2.89%	1.69%	1.52%	2.24%	1.64%
396	fuel oil	2.01%	3.30%	1.56%	1.28%	3.00%	4.52%	2.71%	2.65%	5.21%	3.05%	2.75%	4.04%	2.95%
397	lubricating oils and greases	0.38%	0.62%	0.29%	0.24%	0.56%	0.85%	0.51%	0.50%	0.98%	0.58%	0.52%	0.76%	0.56%
399	butane, propane&other liq.pet.	0.04%	0.07%	0.03%	0.03%	0.06%	0.09%	0.05%	0.05%	0.10%	0.06%	0.05%	0.08%	0.06%
403	fertilizers	1.03%	0.95%	0.70%	0.19%	0.88%	3.05%	1.54%	1.19%	0.61%	1.20%	2.01%	1.63%	1.24%
408	pharmaceuticals	0.28%	0.40%	0.75%	0.03%	0.03%	0.07%	0.01%	0.01%	0.01%	0.25%	0.09%	0.15%	0.20%
423	ammonia, anhydrous and aqua	0.19%	0.17%	0.13%	0.03%	0.16%	0.55%	0.28%	0.22%	0.11%	0.22%	0.36%	0.30%	0.22%
469	fertilizer chemicals	2.48%	2.28%	1.69%	0.46%	2.12%	7.34%	3.70%	2.86%	1.47%	2.89%	4.83%	3.93%	2.98%
471	antifreeze compounds	0.01%	0.01%	0.01%	.00%	0.02%	0.05%	0.04%	0.06%	0.01%	0.02%	0.04%	0.03%	0.02%
481	agricultural chemicals	0.84%	1.11%	1.05%	0.35%	2.35%	5.44%	4.40%	5.92%	1.17%	1.88%	4.53%	2.76%	2.29%
483	automotive chem. ex. antifreez	0.01%	0.01%	.00%	.00%	.00%	0.01%	.00%	0.01%	0.01%	.00%	.00%	0.01%	0.01%
522	repair construction	2.28%	2.19%	1.49%	1.04%	0.94%	1.74%	1.33%	1.51%	2.56%	2.10%	1.35%	2.26%	1.68%
532	serv. incidental to transport	0.03%	0.04%	0.04%	0.04%	0.02%	0.06%	0.03%	0.03%	0.03%	0.04%	0.06%	0.05%	0.04%
536	truck transportation	0.05%	0.06%	0.06%	0.06%	0.04%	0.10%	0.05%	0.05%	0.05%	0.06%	0.09%	0.08%	0.06%
540	pipeline transportation	0.04%	0.07%	0.03%	0.03%	0.06%	0.09%	0.05%	0.05%	0.10%	0.06%	0.05%	0.08%	0.06%
542	storage	0.10%	0.16%	0.12%	0.03%	0.15%	0.48%	0.07%	0.06%	0.09%	0.22%	0.16%	0.24%	0.18%
544	telephone & telegraph	0.38%	0.36%	0.30%	0.15%	0.20%	0.42%	0.64%	0.89%	0.36%	0.38%	1.91%	2.13%	0.37%
545	postal services	0.01%	0.05%	0.02%	0.01%	0.02%	0.07%	0.02%	0.08%	0.06%	0.05%	0.42%	0.17%	0.04%
546	electric power	1.65%	1.28%	1.80%	1.12%	0.60%	1.09%	0.86%	1.17%	1.99%	1.45%	0.84%	1.50%	1.20%
547	gas distribution	0.01%	0.01%	0.01%	.00%	0.01%	0.02%	0.01%	0.01%	0.02%	0.01%	0.01%	0.01%	0.01%
549	water and other utilities	0.08%	0.06%	0.09%	0.05%	0.03%	0.05%	0.04%	0.06%	0.10%	0.07%	0.04%	0.07%	0.06%
550	wholesaling margins	2.64%	2.66%	3.40%	3.20%	1.67%	3.96%	2.57%	2.24%	2.24%	2.84%	3.38%	3.48%	2.71%
553	retailing margins	0.40%	0.62%	0.76%	0.15%	0.29%	0.62%	0.34%	0.33%	0.35%	0.51%	0.53%	0.60%	0.47%
554	imputed service banks	0.23%	0.49%	0.29%	0.24%	0.33%	0.47%	0.38%	0.51%	0.94%	0.18%	0.10%	0.31%	0.37%
555	oth. real est (non-rent)&fin.s	0.11%	0.19%	0.08%	0.05%	0.16%	0.27%	0.11%	0.17%	0.13%	0.15%	0.12%	0.24%	0.16%
556	insurance & W.C.B.	0.31%	0.21%	0.15%	0.24%	0.08%	0.16%	0.58%	1.27%	1.24%	0.14%	0.40%	0.41%	0.27%
559	other rent	2.03%	3.35%	1.47%	0.68%	2.87%	7.27%	3.27%	4.25%	2.27%	2.46%	6.09%	4.94%	3.28%
566	services to business managemen	0.20%	0.26%	0.16%	0.07%	0.14%	0.27%	0.46%	0.38%	0.54%	0.23%	1.22%	1.10%	0.24%
575	rental data processing equip.	.00%	0.01%	.00%	.00%	.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.03%	0.02%	0.01%
576	other serv. to business&person	.00%	0.01%	.00%	.00%	.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.03%	0.02%	0.01%
577	rental of automobiles & trucks	0.03%	0.04%	0.02%	0.01%	0.02%	0.04%	0.02%	0.03%	0.02%	0.02%	0.04%	0.03%	0.03%
578	trade association dues	0.04%	0.05%	0.07%	0.01%	0.01%	0.03%	0.02%	0.02%	0.01%	0.03%	0.03%	0.03%	0.03%
579	rental mach&eq incl. const.mac	0.11%	0.15%	0.08%	0.03%	0.08%	0.19%	0.10%	0.13%	0.08%	0.08%	0.17%	0.14%	0.11%
580	spare parts&maint. suppl. mach	2.03%	2.41%	1.11%	0.61%	2.12%	3.21%	1.70%	2.15%	1.73%	2.47%	2.49%	2.78%	2.13%
581	office supplies	0.02%	0.11%	0.03%	0.02%	0.04%	0.15%	0.04%	0.17%	0.12%	0.10%	0.91%	0.35%	0.08%
583	transportation margins	0.95%	1.01%	1.10%	0.90%	0.63%	1.69%	0.93%	0.85%	0.83%	1.07%	1.57%	1.42%	1.02%
585	travelling and entertainment	.00%	0.01%	.00%	.00%	.00%	0.01%	.00%	0.01%	0.01%	0.01%	0.06%	0.02%	0.01%
587	purchased repair ser. for mach	0.97%	1.15%	0.53%	0.29%	1.01%	1.84%	0.81%	1.03%	0.83%	1.18%	1.19%	1.33%	1.02%
595	government goods & services	0.17%	0.09%	0.14%	0.02%	0.06%	0.07%	0.04%	0.14%	0.04%	0.10%	0.08%	0.11%	0.09%
596	commodity indirect taxes	0.33%	0.60%	0.31%	0.24%	0.52%	0.79%	0.50%	0.51%	0.91%	0.56%	0.57%	0.81%	0.53%
597	subsidies	-10.38%	-5.28%	-8.33%	-1.02%	-3.97%	-4.43%	-2.77%	-8.49%	-2.41%	-6.22%	-4.75%	-6.53%	-5.61%
598	other indirect taxes	2.60%	4.60%	1.85%	1.17%	3.87%	6.59%	2.69%	4.28%	3.30%	3.73%	2.93%	6.95%	3.81%
599	wages and salaries	6.78%	5.25%	3.95%	6.94%	1.99%	4.46%	16.85%	28.98%	34.82%	3.32%	12.50%	9.92%	6.83%
600	supplementary labour income	0.38%	0.40%	0.21%	0.16%	0.26%	0.37%	0.36%	0.70%	0.74%	0.27%	0.28%	0.51%	0.35%
601	net income unincorp business	28.35%	16.51%	8.00%	6.80%	24.39%	25.97%	16.32%	19.25%	12.47%	14.49%	20.81%	22.74%	20.42%
602	other operating surplus	25.38%	25.65%	37.26%	34.68%	45.97%	6.51%	28.90%	16.39%	9.52%	35.97%	11.93%	6.09%	28.25%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table A-3.4
DISTRIBUTION OF THE CENSUS SELECTED EXPENDITURES
BY FARM TYPE, 1981

Expenses	Dairy	Cattle	Hogs	Poultry	Wheat	Small Grains	Field Crops	Fruit & Veget.	Misc. Spec.	Livstk. Comb.	Field Cr Comb.	Other Comb.	TOTAL
Cash Rent	10.55%	16.15%	3.30%	1.31%	19.71%	33.02%	4.69%	3.59%	2.23%	2.92%	0.82%	1.71%	100.00%
Cash Wages	16.89%	12.11%	4.25%	6.38%	6.54%	9.71%	11.60%	11.74%	16.44%	1.89%	0.81%	1.64%	100.00%
Feed and Supplements	25.29%	17.57%	21.25%	22.02%	1.63%	3.63%	0.40%	0.23%	2.13%	4.61%	0.17%	1.07%	100.00%
Seeds and Seedlings	16.35%	12.09%	4.27%	1.28%	11.94%	27.39%	5.95%	4.69%	10.72%	3.06%	0.70%	1.56%	100.00%
Fertilizer and Lime	14.17%	12.04%	4.17%	0.96%	15.97%	36.62%	5.84%	2.66%	1.59%	3.77%	0.71%	1.49%	100.00%
Agriculture Chemicals	6.26%	7.63%	3.38%	0.96%	23.10%	35.39%	9.04%	7.16%	1.65%	3.20%	0.87%	1.36%	100.00%
Mach Rent & Custom Work	17.11%	21.04%	5.02%	1.70%	15.35%	24.89%	4.35%	3.29%	2.40%	2.71%	0.67%	1.46%	100.00%
Fuel, Oil and Lube	11.60%	17.65%	3.88%	2.72%	22.87%	22.80%	4.32%	2.49%	5.69%	4.03%	0.41%	1.55%	100.00%
Farm Machinery R&M	16.15%	17.82%	3.81%	1.81%	22.35%	22.42%	3.75%	2.79%	2.61%	4.50%	0.51%	1.47%	100.00%
Buildings & Fences R&M	23.07%	20.59%	6.54%	3.89%	12.58%	15.46%	3.72%	2.49%	4.93%	4.86%	0.35%	1.52%	100.00%
Electricity & Phone	23.40%	16.85%	11.08%	5.86%	11.31%	13.61%	3.36%	2.71%	5.37%	4.72%	0.31%	1.42%	100.00%
TOTAL	17.23%	15.44%	8.63%	7.56%	12.87%	19.29%	4.74%	3.65%	4.90%	3.75%	0.52%	1.42%	100.00%

Table A-3.5

NUMBER AND DISTRIBUTION OF LIVESTOCK ON FARMS BY FARM TYPE

Farm Type	Hogs	Poultry	Dairy	Beef
Dairy	406185	1394585	1537139	1570465
Cattle	536395	2072732	23594	6924490
Hogs	7011609	1588440	19114	131759
Poultry	182411	86274899	7413	48708
Wheat	106197	1197579	10440	841718
Sm.Grains	346311	1480207	18301	1106060
Field Crops	17704	142032	1287	19691
Fruit & Veget.	8213	153547	1013	13471
Misc. Specialty	6414	111257	1400	22643
Livestock Comb.	991105	4759650	54162	494748
Field Crop Comb.	23404	40070	1779	22856
Other Comb.	79556	412732	5901	165978
Total	9715504	99627730	1677154	11375086

Farm Type	Hogs	Poultry	Dairy	Beef
Dairy	4.18%	1.40%	91.65%	13.81%
Cattle	5.52%	2.08%	1.41%	60.87%
Hogs	72.17%	1.59%	1.14%	1.16%
Poultry	1.88%	86.60%	0.44%	0.43%
Wheat	1.09%	1.20%	0.62%	7.40%
Sm.Grains	3.56%	1.49%	1.09%	9.72%
Field Crops	0.18%	0.14%	0.08%	0.17%
Fruit & Veget.	0.08%	0.15%	0.06%	0.12%
Misc. Specialty	0.07%	0.11%	0.08%	0.20%
Livestock Comb.	10.20%	4.78%	3.23%	4.35%
Field Crop Comb	0.24%	0.04%	0.11%	0.20%
Other Comb.	0.82%	0.41%	0.35%	1.46%
Total	100.00%	100.00%	100.00%	100.00%

Source: Statistics Canada, 1981 Census of Agriculture, Table 30.

Table A-3.6

DISTRIBUTION OF TRACTORS AND OTHER AGRICULTURE MACHINERY
ON FARMS BY FARM TYPE

Farm Type	No. Tractors On Farms	%
Dairy	111365	18.38%
Cattle	134415	22.19%
Hogs	22438	3.70%
Poultry	8315	1.37%
Wheat	119426	19.71%
Sm.Grains	121104	19.99%
Field Crops	19511	3.22%
Fruit & Veget.	21289	3.51%
Misc. Specialty	14053	2.32%
Livestock Comb.	22804	3.76%
Field Crop Comb	1946	0.32%
Other Comb.	9151	1.51%
Total	605817	100.00%

Farm Type	Agriculture Machinery On Farms(1)	%
Dairy	83790	16.81%
Cattle	116127	23.29%
Hogs	13208	2.65%
Poultry	3607	0.72%
Wheat	130751	26.23%
Sm.Grains	107907	21.64%
Field Crops	5696	1.14%
Fruit & Veget.	2110	0.42%
Misc. Specialty	4406	0.88%
Livestock Comb.	22347	4.48%
Field Crop Comb	1086	0.22%
Other Comb.	7499	1.50%
Total	498534	100.00%

Note: (1) Agricultural Machinery includes: grain combines, swathers, balers and forage crop harvesters on farms.

Source: Statistics Canada, 1981 Census of Agriculture, Table 30.

Table A-3.7

DISTRIBUTION OF AUTOMOBILES ON FARMS
BY FARM TYPE

Farm Type	No. Autos On Farms	%
Dairy	46721	16.08%
Cattle	62236	21.42%
Hogs	13646	4.70%
Poultry	6528	2.25%
Wheat	56631	19.49%
Sm.Grains	57582	19.81%
Field Crops	9146	3.15%
Fruit & Veget	11283	3.88%
Misc. Special	11467	3.95%
Livestock Com	9931	3.42%
Field Crop Co	745	0.26%
Other Comb.	4702	1.62%
Total	290618	100.00%

Source: Statistics Canada, 1981 Census of Agriculture, Table 30.

Table A-3.8

DISTRIBUTION OF THE VALUE OF LAND AND BUILDINGS BY FARM TYPE

Farm Type	Value of Land & Buildings $	Distribn. %
Dairy	11,397,635,700	11.63
Cattle	18,688,320,078	19.06
Hogs	3,495,825,544	3.57
Poultry	1,885,645,069	1.92
Wheat	22,437,354,794	22.90
Small Grains	25,243,599,083	25.77
Field crops	3,252,568,916	3.32
Fruits & Veget.	3,042,839,918	3.11
Misc. Specialty	2,746,841,265	2.80
Livestock Comb.	3,737,135,451	3.81
Field Crop Comb.	323,736,120	.34
Other Comb.	1,732,021,280	1.77
TOTAL	97,963,523,218	100.00

Source: Statistics Canada, 1981 Census of Agriculture Table 30, September 1982.

Table A-3.9

THE NUMBER OF WEEKS OF HIRED LABOUR BY FARM TYPE

Farm Type	Hired Labour (Weeks)	Distribn. %
Dairy	873,391	19.57
Cattle	549,452	12.31
Hogs	188,585	4.22
Poultry	251,479	5.63
Wheat	291,668	6.53
Small Grains	409,121	9.16
Field crops	452,648	10.14
Fruits & Veget.	584,983	13.10
Misc. Specialty	665,522	14.92
Livestock Comb.	90,197	2.02
Field Crop Comb.	29,196	.65
Other Comb.	78,311	1.75
TOTAL	4,464,553	100.00

Source: Statistics Canada, 1981 Census of Agriculture Table 30, September 1982.

Table A-3.10

DISTRIBUTION OF OTHER EXPENSES BY FARM TYPE

Farm Type	Other Expenses $	Distribn. %
Dairy	54,702	5.00%
Cattle	245,833	22.47%
Hogs	32,821	3.00%
Poultry	16,411	1.50%
Wheat	131,286	12.00%
Small Grains	300,535	27.47%
Field Crops	28,008	2.56%
Vegetables	65,643	6.00%
Miscellaneous	54,702	5.00%
Livestock Comb.	54,702	5.00%
Field Crop Comb.	54,702	5.00%
Other Comb.	54,702	5.00%
TOTAL	1,094,049	100.00%

Source: Other Expenses calculated as a residual based on Census of Agriculture, 1981 (Table 30) data. Est. of depreciation, taxes, livestock expenses, small tools-twine,etc.,and interest charges were deducted from total farm type expenditures.

Table A-3.11

DISTRIBUTION OF EXPENDITURE ITEMS BY FARM TYPE
USING TAXFILER DATA

	Containers & Twine	Telephone & Electricity	Accounting, Legal Fees
Dairy	$11,550,600	$12,110,000	$6,683,400
Cattle	$6,642,000	$10,619,000	$7,919,500
Hogs	$2,586,600	$4,151,000	$2,260,700
Poultry	$507,600	$1,778,000	$855,400
Wheat	$3,137,400	$8,505,000	$6,359,100
Small Grains	$10,065,600	$11,578,000	$7,957,100
Field Crops	$6,723,000	$5,649,000	$4,244,100
Fruit & Veg.	$4,795,200	$4,592,000	$2,082,100
Misc.Spec.	$561,600	$2,177,000	$3,435,700
Livstk.Comb.	$1,776,600	$2,765,000	$1,715,500
Field Crp.Comb.	$1,749,600	$1,575,000	$1,057,500
Other Comb.	$3,904,200	$4,501,000	$2,429,900
Total	$54,000,000	$70,000,000	$47,000,000

	Containers & Twine	Telephone & Electricity	Accounting, Legal Fees
	(Percentage Distribution)		
Dairy	21.39%	17.30%	14.22%
Cattle	12.30%	15.17%	16.85%
Hogs	4.79%	5.93%	4.81%
Poultry	0.94%	2.54%	1.82%
Wheat	5.81%	12.15%	13.53%
Small Grains	18.64%	16.54%	16.93%
Field Crops	12.45%	8.07%	9.03%
Fruit & Veg.	8.88%	6.56%	4.43%
Misc.Spec.	1.04%	3.11%	7.31%
Livstk.Comb.	3.29%	3.95%	3.65%
Field Crp.Comb.	3.24%	2.25%	2.25%
Other Comb.	7.23%	6.43%	5.17%
Total	100.00%	100.00%	100.00%

Table A-3.12

DISTRIBUTION OF SEED PURCHASES: WHEAT & SMALL GRAINS BY FARM TYPE, CANADA

Farm Type	Wheat Seed Expenditures(1)	%
Dairy	$3,870,118	1.43%
Cattle	$16,157,068	5.97%
Hogs	$2,300,420	0.85%
Poultry	$893,104	0.33%
Wheat	$178,620,851	66.01%
Small Grains	$55,805,484	20.62%
Field Crops	$1,326,124	0.49%
Fruit & Veget.	$216,510	0.08%
Misc. Specialty	$162,383	0.06%
Livestock Comb.	$7,631,982	2.82%
Field Crop Comb.	$487,148	0.18%
Other Comb.	$3,139,397	1.16%
Total	$270,610,589	100.00%

Farm Type	Small Grains Seed Expend.(2)	%
Dairy	$20,779,818	8.89%
Cattle	$35,735,670	15.30%
Hogs	$12,581,865	5.39%
Poultry	$2,189,491	0.94%
Wheat	$34,221,502	14.65%
Small Grains	$106,257,021	45.48%
Field Crops	$2,800,280	1.20%
Fruit & Veget.	$889,590	0.38%
Misc. Specialty	$613,419	0.26%
Livestock Comb.	$12,902,381	5.52%
Field Crop Comb.	$879,471	0.38%
Other Comb.	$3,778,113	1.62%
Total	$233,628,623	100.00%

Note: (1) Acreages by crop and by province for respective crops are based on data from Statistics Canada, Census of Agriculture 1981, farm type figures, Table 30.

(2) Small Grain crops include: oats, barley, corn for grain and rye.

Source: Cost of Production Studies for Prairie Grain Production, various studies at the Provincial level. Costs per acre were multiplied by respective acreages and then totalled to estimate Canadian seed expenditures by farm type.

Table A-3.13

ESTIMATED SEED COSTS: FRESH VEGETABLES, 1981

Province	Prov.Potato Acreage	Seed Cost Per Acre*	Total Seed Costs $
B.C.	8,432	$272.62	$2,298,732
Alta.	16,519	$284.84	$4,705,272
Saskatchewan	2,386	$294.49	$702,653
Manitoba	40,563	$304.14	$12,336,831
Ontario	38,297	$253.23	$9,697,949
Quebec	40,833	$243.02	$9,923,236
N.B.	53,216	$291.92	$15,534,815
N.S.	3,653	$293.42	$1,071,863
PEI	63,722	$294.92	$18,792,892
Nfld.	855	$293.42	$250,874
TOTAL	268,476		$75,064,243

DISTRIBUTION OF TOTAL SEED COSTS BY FARM TYPE

Farm Type	Estim. Seed Potato Costs	Distrib. %
Dairy	$1,867,230	2.49%
Cattle	$1,301,086	1.73%
Hogs	$590,055	0.79%
Poultry	$198,351	0.26%
Wheat	$75,507	0.10%
Grains	$810,927	1.08%
Field Crops	$59,579,775	79.37%
Fruit & Veget.	$2,309,830	3.08%
Misc. Spec.	$140,368	0.19%
Livestock Comb.	$2,618,250	3.49%
Field Crp Comb	$4,317,298	5.75%
Other Comb	$1,255,566	1.67%
TOTAL	$75,064,243	100.00%

Source: Statistics Canada, 1981 Census of Agriculture, Table 30, September 1982.

Table A-3.14

ESTIMATED DISTRIBUTION OF VETERINARY, BREEDING & MACHINERY AND CUSTOM WORK COSTS BY FARM TYPE

Farm Type	Est. Vet. Fees	Est. Distribn.%
Dairy	$33,160,357	24.21%
Cattle	$44,008,587	32.13%
Hogs	$37,997,436	27.75%
Poultry	$1,479,504	1.08%
Wheat	$4,383,018	3.20%
Small Grains	$6,900,445	5.04%
Field Crops	$281,511	0.21%
Fruit & Veget.	$195,959	0.14%
Misc. Special.	$218,374	0.16%
Livstk.Comb.	$6,865,888	5.01%
Field Crop Comb	$267,606	0.20%
Other Comb.	$1,212,196	0.89%
TOTAL	$136,950,507	100.00%

Farm Type	Est.Mach.Rent & Cust.Wrk. $	Est. Distrib.%
Dairy	$22,746,792	17.11%
Cattle	$27,972,131	21.04%
Hogs	$6,680,039	5.02%
Poultry	$2,264,187	1.70%
Wheat	$20,409,016	15.35%
Small Grains	$33,101,565	24.89%
Field Crops	$5,785,095	4.35%
Fruit & Veget.	$4,377,396	3.29%
Misc. Special.	$3,192,366	2.40%
Livstk.Comb.	$3,607,791	2.71%
Field Crop Comb	$892,096	0.67%
Other Comb.	$1,938,493	1.46%
TOTAL	$132,966,492	100.00%

Table A-3.14 (cont'd)

Farm Type	Est. Vet. & Cust.Work	Est. Distribn.%
Dairy	$55,907,149	20.71%
Cattle	$71,980,717	26.67%
Hogs	$44,677,475	16.55%
Poultry	$3,743,691	1.39%
Wheat	$24,792,034	9.19%
Small Grains	$40,002,010	14.82%
Field Crops	$6,066,606	2.25%
Fruit & Veget.	$4,573,355	1.69%
Misc. Special.	$3,410,739	1.26%
Livstk.Comb.	$10,473,679	3.88%
Field Crop Comb	$1,159,702	0.43%
Other Comb.	$3,150,689	1.17%
TOTAL	$269,917,000	100.00%

Table A-3.15

DISTRIBUTION OF INTEREST COSTS BY FARM TYPE

Farm Type	Interest Paid	%
Dairy	$223,716,166.0	10.48%
Cattle	$443,171,008.5	20.76%
Hogs	$123,966,138.3	5.81%
Poultry	$85,852,594.7	4.02%
Wheat	$431,659,911.2	20.22%
Small Grains	$403,073,469.6	18.88%
Field Crops	$103,593,224.6	4.85%
Fruit & Vegetables	$81,142,183.5	3.80%
Misc.Specialty	$175,959,667.2	8.24%
Livestock Comb.	$39,701,646.9	1.86%
Field Crop Comb.	$2,565,215.8	0.12%
Other Comb.	$20,539,266.0	0.96%
Total	$2,134,940,492.4	100.00%

Note: Interest Paid = Total of short, intermediate and long term interest payments from FCC source. Interest rates for the respective terms were: 20.92%, 18.97%, 15.67%.

Sources: Farm Credit Corp oration, Special Tabulation, Borrowings By Farm Type, Farm Survey, 1984. Agriculture Canada, Market Commentary: Farm Inputs & Finance, Regional Development Branch, December/82.

Table A-3.16

ESTIMATION OF INDIRECT COMMODITY TAXES BY FARM TYPE

Farm Type	Tot.Indirect Taxes	Distrib. %
Dairy	12,143	2.21
Cattle	17,300	1.87
Hogs	4,057	.05
Poultry	2,647	.66
Wheat	21,794	1.07
Sm.Grains	22,258	63.34
Field Crops	4,755	11.68
Fruit & Veget.	2,861	8.81
Misc. Specialty	5,387	1.60
Livestock Comb.	4,004	.30
Field Crop Comb.	634	3.55
Other Comb.	2,102	4.87
Total	99,941	100.00

Source: Statistics Canada, Unpublished Data, Tax Margins by Commodity, Input-Output Division, Ottawa.

Table A-3.17

DISTRIBUTION OF SUBSIDIES BY FARM TYPE

	Subsidies $	Distribn. %
Dairy	$330,064,467	31.49%
Cattle	$155,584,319	14.84%
Hogs	$114,542,277	10.93%
Poultry	$12,007,255	1.15%
Wheat	$166,907,936	15.92%
Small Grains	$123,278,148	11.76%
Field Crops	$24,364,065	2.32%
Fruit & Veg.	$43,910,677	4.19%
Misc.Spec.	$14,552,133	1.39%
Livstk.Comb.	$45,188,933	4.31%
Field Crp.Comb.	$3,920,804	0.37%
Other Comb.	$13,806,292	1.32%
Total	$1,048,127,305	100.00%

Table A-3.18

DISTRIBUTION OF MARGINS BY FARM TYPE

FARM TYPE	RETAIL #553	WHOLESALE #550	TAX #596	GAS #547	TRANSPORT #583	STORE #542	PIPELINE #540
Dairy	$14,701	$84,113	$12,549	$235	$30,125	$783	$1,267
Cattle	$18,225	$78,546	$17,591	$358	$29,790	$1,195	$1,927
Hogs	$10,442	$46,742	$4,308	$79	$15,099	$411	$424
Poultry	$1,794	$37,499	$2,836	$55	$11,519	$79	$297
Wheat	$12,349	$70,212	$21,832	$464	$26,626	$1,620	$2,497
Grains	$17,422	$110,366	$22,064	$462	$47,145	$3,481	$2,489
Crops	$3,002	$22,654	$4,377	$87	$8,175	$150	$471
Veget.	$1,735	$11,599	$2,651	$50	$4,389	$78	$272
Misc.Spec.	$2,108	$13,529	$5,488	$115	$4,984	$137	$622
Lstk Comb.	$3,730	$20,669	$4,058	$82	$7,776	$422	$440
Fld Cp Comb	$440	$2,788	$471	$8	$1,299	$34	$45
Other Comb.	$1,270	$7,365	$1,717	$31	$2,996	$134	$169
TOTAL	$87,214	$506,080	$99,941	$2,027	$209,368	$8,525	$10,920

FARM TYPE	RETAIL #553	WHOLESALE #550	TAX #596	GAS #547	TRANSPORT #583	STORE #542	PIPELINE #540
Dairy	16.86%	16.62%	12.56%	11.60%	15.86%	9.19%	11.60%
Cattle	20.90%	15.52%	17.60%	17.65%	15.69%	14.02%	17.65%
Hogs	11.97%	9.24%	4.31%	3.88%	7.95%	4.82%	3.88%
Poultry	2.06%	7.41%	2.84%	2.72%	6.07%	0.93%	2.72%
Wheat	14.16%	13.87%	21.84%	22.87%	14.02%	19.01%	22.87%
Grains	19.98%	21.81%	22.08%	22.80%	24.82%	40.83%	22.80%
Crops	3.44%	4.48%	4.38%	4.32%	4.30%	1.76%	4.32%
Veget.	1.99%	2.29%	2.65%	2.49%	2.31%	0.92%	2.49%
Misc.Spec.	2.42%	2.67%	5.49%	5.69%	2.62%	1.61%	5.69%
Lstk Comb.	4.28%	4.08%	4.06%	4.03%	4.09%	4.95%	4.03%
Fld Cp Comb	0.50%	0.55%	0.47%	0.41%	0.68%	0.40%	0.41%
Other Comb.	1.46%	1.46%	1.72%	1.55%	1.58%	1.57%	1.55%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Note: Unpublished data on total margin values and distribution by commodity was utilized to allocate margins by farm type. The Use matrix distribution (%'s) were multiplied to the dollar value of the margins in the unpublished data to obtain a margin distribution by farm type.

Source: Statistics Canada, Unpublished Data on margins by commodity, L Level of Aggregation, National Model, Input-Output Div., 1981.

Table A-3.19

ESTIMATED DISTRIBUTION OF LABOUR EXPENSES, 1981

Farm Type	Operator(1)	Off-Farm Work(2)	Operator Weeks(3)	Hired Labour(4)	TOTAL (5)	Distrib. %
Dairy	2,179,060	157,065	2,021,995	873,391	2,895,386	18.67%
Cattle	3,127,228	867,190	2,260,038	549,452	2,809,490	18.12%
Hogs	639,652	141,266	498,426	188,585	687,011	4.43%
Poultry	282,776	75,959	206,817	251,479	458,296	2.96%
Wheat	2,900,560	544,236	2,356,324	291,668	2,647,992	17.07%
Sm. grain	2,708,472	668,232	2,040,240	409,121	2,449,361	15.79%
Field crop	401,544	90,850	310,694	452,648	763,342	4.92%
Fruits&veg	533,988	160,023	373,965	584,983	958,948	6.18%
Misc. spec	605,280	210,660	394,620	665,522	1,060,142	6.84%
Live. comb	470,808	96,647	374,161	90,197	464,359	2.99%
Fd.cp.comb	30,472	4,011	26,461	29,196	55,657	0.36%
Oth. comb.	243,568	63,531	180,037	78,311	258,348	1.67%
TOTAL	14,123,408	3,079,670	11,043,778	4,464,553	15,508,332	100.00%

NOTE: a) farms with $2500 of sales or more
b) all numbers are represented in weeks
c) (3)=(1)-(2)
(5)=(3)+(4)

Table A-3.20

DISTRIBUTION OF NET FARM INCOME BY FARM TYPE
FARM OPERATOR FAMILIES, CANADA 1980

Type of farm	No.Census Farms	Average Net Farm Income $	Total Net Farm Income $	Distribn. %
Dairy	39785	12744	507,020,040	23.63%
Cattle	52835	5183	273,843,805	12.76%
Hogs	11455	5391	61,753,905	2.88%
Poultry	5025	8915	44,797,875	2.09%
Wheat	44465	12979	577,111,235	26.90%
Small Grains	44945	9038	406,212,910	18.93%
Field crops	6990	11542	80,678,580	3.76%
Fruits & Veg.	9405	5944	55,903,320	2.61%
Misc. Spec.	10445	4046	42,260,470	1.97%
Livestock Comb.	8170	7245	59,191,650	2.76%
Field Crop Comb.	485	19415	9,416,275	0.44%
Other Comb.	4040	6717	27,136,680	1.26%
TOTAL	238045	9012	2,145,326,745	100.00%

Source: Statistics Canada, Farming Facts, 1984, Agricultural Statistics Division, Drawn from the Agriculture-Population Linkage, 1981 Census of Canada, pp.4-5.

Table A-3.21

DISTRIBUTION OF OTHER OPERATING SURPLUS BY FARM TYPE

	Total Revenue ('000's)	Total Expenses ('000's)	Difference ('000's)	Distribn. (%)
Dairy	$3,182,507	$2,374,963	$807,544	17.02%
Cattle	$2,951,529	$2,194,542	$756,987	15.78%
Hogs	$1,375,495	$862,998	$512,497	7.36%
Poultry	$1,173,129	$766,317	$406,812	6.27%
Wheat	$4,211,815	$2,275,867	$1,935,948	22.52%
Small Grajns	$2,783,862	$2,602,549	$181,313	14.89%
Field Crops	$879,882	$625,604	$254,278	4.70%
Fr.& Vegetables	$517,783	$432,923	$84,860	2.77%
Misc. Specialty	$603,321	$545,923	$57,398	3.23%
Livetock Comb.	$727,451	$465,827	$261,624	3.89%
Field Crop Comb.	$82,599	$72,746	$9,853	0.44%
Other Comb.	$211,627	$198,741	$12,886	1.13%
	$18,701,000	$13,419,000	$5,282,000	100.00%

Table A-4.1
MAKE (OUTPUT) DISTRIBUTION OF SECTOR REVENUES BY COMMODITY
BY FARM TYPE

CANADA:	Dairy	Cattle	Hogs	Poultry	Wheat	Small Grain	Other Field Crops	Fruit & Veget.	Miscell. Specialty	Livestock Comb.	Crop Comb.	Other Comb.	TOTAL
1 cattle & calves	14.79%	62.27%	1.27%	0.50%	5.78%	8.65%	0.32%	0.11%	0.16%	4.55%	0.23%	1.37%	100.00%
2 sheep & lambs	5.52%	17.77%	2.56%	0.93%	2.48%	7.77%	0.16%	0.61%	43.82%	16.70%	0.15%	1.53%	100.00%
3 hogs	4.10%	5.80%	71.59%	1.71%	1.11%	3.63%	0.20%	0.09%	0.06%	10.65%	0.24%	0.83%	100.00%
4 poultry	1.16%	2.03%	1.57%	87.35%	1.30%	1.45%	0.08%	0.08%	0.13%	4.49%	0.04%	0.34%	100.00%
5 other live animals	1.66%	8.80%	0.63%	0.28%	1.58%	2.89%	0.10%	0.27%	79.41%	3.96%	0.02%	0.39%	100.00%
7 wheat unmilled	1.64%	5.81%	0.95%	0.37%	65.21%	21.14%	0.55%	0.13%	0.07%	2.80%	0.19%	1.15%	100.00%
8 barley,oats,rye,corn,g	3.24%	7.65%	0.97%	0.30%	48.75%	33.09%	1.05%	0.32%	0.15%	2.92%	0.28%	1.29%	100.00%
9 milk,whole,fluid,unpro	92.90%	0.97%	0.95%	0.41%	0.37%	0.79%	0.07%	0.02%	0.03%	3.13%	0.04%	0.32%	100.00%
10 eggs in the shell	2.00%	2.75%	1.74%	80.43%	1.19%	2.03%	0.05%	0.26%	0.16%	8.78%	0.06%	0.54%	100.00%
11 honey & beeswax	0.08%	0.11%	0.06%	0.12%	0.05%	0.23%	6.17%	1.81%	89.52%	0.11%	0.26%	1.48%	100.00%
12 nuts,edible,not shell	0.08%	0.11%	0.06%	0.12%	0.05%	0.23%	6.17%	1.81%	89.52%	0.11%	0.26%	1.48%	100.00%
13 fruits, fresh	1.52%	1.42%	0.90%	1.63%	0.04%	0.85%	0.60%	88.66%	1.79%	0.88%	0.18%	1.50%	100.00%
14 vegetables, fresh	1.64%	2.05%	1.21%	0.46%	1.34%	8.75%	51.15%	20.62%	5.75%	1.20%	3.50%	2.32%	100.00%
15 hay,forage & straw	24.00%	45.57%	1.05%	0.56%	6.17%	14.02%	2.67%	0.15%	1.15%	3.28%	0.14%	1.24%	100.00%
16 seeds, ex. oil & seed	1.42%	6.27%	0.75%	0.32%	13.59%	57.08%	10.93%	0.08%	0.63%	1.72%	0.78%	6.44%	100.00%
17 nursery stock	0.08%	0.11%	0.06%	0.12%	0.05%	0.23%	6.17%	1.81%	89.52%	0.11%	0.26%	1.48%	100.00%
18 oil seeds, nuts & ker	1.11%	3.47%	1.38%	0.42%	13.14%	75.80%	0.30%	0.53%	0.10%	2.38%	0.29%	1.09%	100.00%
19 hops inc. lupulin	0.08%	0.11%	0.06%	0.12%	0.05%	0.23%	6.17%	1.81%	89.52%	0.11%	0.26%	1.48%	100.00%
20 tobacco raw	0.97%	2.46%	1.43%	0.40%	2.49%	12.54%	64.54%	0.51%	9.33%	0.78%	3.68%	0.87%	100.00%
21 mink skins	1.66%	8.80%	0.63%	0.28%	1.58%	2.89%	0.10%	0.27%	79.41%	3.96%	0.02%	0.39%	100.00%
22 wool in grease	5.52%	17.77%	2.56%	0.93%	2.48%	7.77%	0.16%	0.61%	43.82%	16.70%	0.15%	1.53%	100.00%
23 serv. incidental to a	10.95%	26.09%	4.84%	2.67%	14.12%	22.22%	2.80%	3.72%	7.31%	2.83%	0.23%	2.22%	100.00%
24 logs & bolts	26.88%	33.03%	3.35%	1.42%	5.82%	13.70%	3.53%	2.78%	4.65%	3.07%	0.24%	1.53%	100.00%
25 poles, pit props	26.88%	33.03%	3.35%	1.42%	5.82%	13.70%	3.53%	2.78%	4.65%	3.07%	0.24%	1.53%	100.00%
26 pulpwood	26.88%	33.03%	3.35%	1.42%	5.82%	13.70%	3.53%	2.78%	4.65%	3.07%	0.24%	1.53%	100.00%
27 other crude wood mate	26.88%	33.03%	3.35%	1.42%	5.82%	13.70%	3.53%	2.78%	4.65%	3.07%	0.24%	1.53%	100.00%
52 beef,veal,pork, fresh	12.06%	47.85%	19.23%	0.81%	4.59%	7.37%	0.29%	0.11%	0.13%	6.10%	0.23%	1.23%	100.00%
62 hides & skins, raw, n	14.79%	62.27%	1.27%	0.50%	5.78%	8.65%	0.32%	0.11%	0.16%	4.55%	0.23%	1.37%	100.00%
63 animal mat. for drugs	1.66%	8.80%	0.63%	0.28%	1.58%	2.89%	0.10%	0.27%	79.41%	3.96%	0.02%	0.39%	100.00%
65 poultry,fresh,frozen	1.16%	2.03%	1.57%	87.35%	1.30%	1.45%	0.08%	0.08%	0.13%	4.49%	0.04%	0.34%	100.00%
107 maple sugar&syrop	43.85%	8.94%	4.99%	1.01%	0.18%	1.52%	0.47%	2.44%	31.22%	3.06%	0.08%	2.24%	100.00%
559 other rent	9.81%	24.61%	2.48%	2.09%	21.80%	19.97%	4.34%	5.67%	5.72%	1.75%	0.21%	1.57%	100.00%
TOTAL	17.02%	15.78%	7.36%	6.27%	22.52%	14.89%	4.70%	2.77%	3.23%	3.89%	0.44%	1.13%	100.00%

Table A-4.2
MAKE (OUTPUT) DISTRIBUTION BY COMMODITY, BY FARM TYPE ($1981)

CANADA:	Dairy	Cattle	Hogs	Poultry	Wheat	Small Grains	Oth.Field Crops	Fruit & Veget.	Miscell. Specialty	Livestock Comb.	Crop Comb.	Other Comb.	TOTAL
1 cattle & calves	$504,389,220	$2,123,389,567	$43,368,257	$16,977,505	$197,057,505	$294,984,874	$10,961,151	$3,879,068	$5,333,553	$154,998,136	$7,926,639	$46,734,525	$3,410,000,000
2 sheep & lambs	$1,214,947	$3,908,633	$564,097	$204,343	$545,270	$1,709,782	$35,120	$134,025	$9,639,428	$3,674,945	$32,292	$337,118	$22,000,000
3 hogs	$65,769,194	$93,094,868	$1,148,273,365	$27,411,452	$17,847,233	$58,242,867	$3,128,901	$1,390,820	$991,938	$170,754,820	$3,772,982	$13,321,560	$1,604,000,000
4 poultry	$8,610,536	$15,038,950	$11,683,418	$648,128,506	$9,634,830	$10,777,907	$574,964	$565,958	$934,280	$33,289,023	$273,192	$2,488,437	$742,000,000
5 other live animals	$1,111,291	$5,896,569	$423,713	$190,272	$1,056,948	$1,935,939	$69,198	$178,527	$53,206,670	$2,655,142	$16,691	$259,050	$67,000,000
7 wheat unmilled	$72,992,898	$259,360,853	$42,216,915	$16,384,894	$2,911,022,818	$943,521,293	$24,584,656	$5,928,819	$3,134,669	$125,138,422	$8,445,137	$51,268,626	$4,464,000,000
8 barley,oats,rye,corn,g	$56,994,968	$134,731,150	$17,097,246	$5,266,729	$858,540,574	$582,667,863	$18,519,623	$5,587,875	$2,637,776	$51,338,195	$4,924,522	$22,693,477	$1,761,000,000
9 milk,whole,fluid,unpro	$2,315,069,474	$24,110,118	$23,761,320	$10,336,478	$9,211,897	$19,608,747	$1,664,445	$575,678	$680,774	$77,900,335	$1,117,510	$7,963,226	$2,492,000,000
10 eggs in the shell	$9,745,363	$13,389,232	$8,494,461	$391,695,823	$5,771,362	$9,897,261	$250,912	$1,286,801	$768,288	$42,770,997	$286,564	$2,642,936	$487,000,000
11 honey & beeswax	$44,746	$58,150	$34,993	$67,433	$25,877	$129,014	$3,395,136	$997,720	$49,235,377	$58,236	$141,869	$811,448	$55,000,000
12 nuts,edible,not shell	$3,254	$4,229	$2,545	$4,904	$1,882	$9,383	$246,919	$72,561	$3,580,755	$4,235	$10,318	$59,014	$4,000,000
13 fruits, fresh	$4,230,156	$3,968,161	$2,521,795	$4,558,609	$124,597	$2,384,904	$1,683,420	$247,370,473	$5,003,657	$2,462,939	$512,750	$4,178,539	$279,000,000
14 vegetables, fresh	$17,445,342	$21,941,086	$12,899,258	$4,868,353	$14,252,941	$93,094,592	$544,267,347	$219,402,754	$61,230,110	$12,798,579	$37,239,993	$24,639,645	$1,064,000,000
15 hay,forage & straw	$1,680,104	$3,190,179	$73,506	$39,522	$431,589	$981,092	$187,185	$10,423	$80,238	$229,312	$9,772	$87,078	$7,000,000
16 seeds, ex. oil & seed	$1,277,859	$5,640,914	$670,567	$284,472	$12,228,512	$51,371,810	$9,836,354	$69,574	$566,990	$1,551,904	$703,443	$5,797,600	$90,000,000
17 nursery stock	$248,139	$322,468	$194,054	$373,948	$143,499	$715,444	$18,827,571	$5,532,812	$273,032,544	$322,947	$786,727	$4,499,847	$305,000,000
18 oil seeds, nuts & ker	$8,138,064	$25,361,487	$10,173,756	$3,065,857	$96,689,060	$557,900,136	$2,223,563	$3,900,265	$704,949	$17,502,959	$2,135,200	$8,004,705	$736,000,000
19 hops inc. lupulin	$3,254	$4,229	$2,545	$4,904	$1,882	$9,383	$246,919	$72,561	$3,580,755	$4,235	$10,318	$59,014	$4,000,000
20 tobacco raw	$3,343,055	$8,498,463	$4,954,742	$1,399,343	$8,609,942	$43,401,796	$223,318,529	$1,758,129	$32,294,699	$2,682,736	$12,742,214	$2,996,352	$346,000,000
21 mink skins	$812,720	$4,312,416	$309,880	$139,154	$772,992	$1,415,836	$50,607	$130,564	$38,912,341	$1,941,820	$12,207	$189,454	$49,000,000
22 wool in grease	$110,450	$355,330	$51,282	$18,577	$49,570	$155,435	$3,193	$12,184	$876,312	$334,086	$2,936	$30,647	$2,000,000
23 serv. incidental to a	$36,688,069	$87,400,366	$16,205,919	$8,956,305	$47,308,450	$74,443,033	$9,382,509	$12,446,302	$24,485,762	$9,481,899	$775,805	$7,425,580	$335,000,000
24 logs & bolts	$6,182,207	$7,596,123	$771,460	$325,941	$1,338,466	$3,151,969	$811,874	$639,564	$1,069,172	$706,378	$55,464	$351,381	$23,000,000
25 poles, pit props	$1,343,958	$1,651,331	$167,709	$70,857	$290,971	$685,211	$176,494	$139,036	$232,429	$153,560	$12,057	$76,387	$5,000,00
26 pulpwood	$5,913,415	$7,265,857	$737,918	$311,769	$1,280,272	$3,014,927	$776,575	$611,757	$1,022,686	$675,666	$53,053	$336,104	$22,000,000
27 other crude wood mate	$21,234,536	$26,091,033	$2,649,797	$1,119,536	$4,597,340	$10,826,330	$2,788,610	$2,196,765	$3,672,374	$2,426,254	$190,508	$1,206,918	$79,000,000
52 beef,veal,pork, fresh	$14,835,138	$58,854,140	$23,652,528	$992,814	$5,642,180	$9,063,465	$355,676	$131,424	$162,677	$7,507,064	$286,787	$1,516,106	$123,000,000
62 hides & skins, raw, n	$739,574	$3,113,474	$63,590	$24,894	$288,941	$432,529	$16,072	$5,688	$7,820	$227,270	$11,623	$68,526	$5,000,000
63 animal mat. for drugs	$232,208	$1,232,119	$89,337	$39,758	$220,855	$404,525	$14,459	$37,304	$11,117,812	$554,806	$3,488	$54,130	$14,000,000
65 poultry,fresh,frozen	$382,948	$668,848	$519,613	$28,825,122	$428,503	$479,341	$25,571	$25,171	$41,552	$1,480,509	$12,150	$110,672	$33,000,000
107 maple sugar&syrup	$18,854,733	$3,842,716	$2,147,627	$433,580	$76,559	$653,302	$200,699	$1,049,400	$13,425,497	$1,316,942	$33,947	$962,996	$43,000,000
559 other rent	$2,844,599	$7,135,864	$718,987	$605,690	$6,321,054	$5,791,081	$1,257,774	$1,643,134	$1,657,518	$507,077	$61,200	$456,021	$29,000,000
TOTAL	$3,182,506,418	$2,951,528,925	$1,375,495,399	$1,173,129,345	$4,211,814,370	$2,783,861,070	$879,882,029	$517,783,137	$603,321,401	$727,451,429	$82,599,337	$211,627,119	$18,701,000,000

Table A-4.3:

DISTRIBUTION OF AGRICULTURE PRODUCTION BY COMMODITY
WITHIN FARM TYPE

Commodity	Dairy Farms	Cattle Farms	Hog Farms	Poultry Farms	Wheat Farms	Small Grain Farms	Field Crop Farms	Fruit & Veg. Farms	Misc. Spec. Farms	Live-stock Comb. Farms	Field Crop Comb. Farms	Other Comb. Farms	TOTAL
1 cattle & calves	15.85%	71.94%	3.15%	1.45%	4.68%	10.60%	1.25%	0.75%	0.88%	21.31%	9.60%	22.08%	18%
2 sheep & lambs	0.04%	0.13%	0.04%	0.02%	0.01%	0.06%	.00%	0.03%	1.60%	0.51%	0.04%	0.16%	0%
3 hogs	2.07%	3.15%	83.48%	2.34%	0.42%	2.09%	0.36%	0.27%	0.16%	23.47%	4.57%	6.29%	9%
4 poultry	0.27%	0.51%	0.85%	55.25%	0.23%	0.39%	0.07%	0.11%	0.15%	4.58%	0.33%	1.18%	4%
5 other live animals	0.03%	0.20%	0.03%	0.02%	0.03%	0.07%	0.01%	0.03%	8.82%	0.36%	0.02%	0.12%	0%
7 wheat unmilled	2.29%	8.79%	3.07%	1.40%	69.12%	33.89%	2.79%	1.15%	0.52%	17.20%	10.22%	24.23%	24%
8 barley,oats,rye,corn,grain	1.79%	4.56%	1.24%	0.45%	20.38%	20.93%	2.10%	1.08%	0.44%	7.0[illegible]	5.96%	10.72%	9%
9 milk,whole,fluid,unprocess	72.74%	0.82%	1.73%	0.88%	0.22%	0.70%	0.19%	0.11%	0.11%	10.71%	1.35%	3.76%	13%
10 eggs in the shell	0.31%	0.45%	0.62%	33.39%	0.14%	0.36%	0.03%	0.25%	0.13%	5.88%	0.35%	1.25%	3%
11 honey & beeswax	.00%	.00%	.00%	0.01%	.00%	.00%	0.39%	0.19%	8.16%	0.01%	0.17%	0.38%	0%
12 nuts,edible,not shelled	.00%	.00%	.00%	.00%	.00%	.00%	0.03%	0.01%	0.59%	.00%	0.01%	0.03%	0%
13 fruits, fresh	0.13%	0.13%	0.18%	0.39%	.00%	0.09%	0.19%	47.77%	0.83%	0.34%	0.62%	1.97%	1%
14 vegetables, fresh	0.55%	0.74%	0.94%	0.41%	0.34%	3.34%	61.86%	42.37%	10.15%	1.76%	45.09%	11.64%	6%
15 hay,forage & straw	0.05%	0.11%	0.01%	.00%	0.01%	0.04%	0.02%	.00%	0.01%	0.03%	0.01%	0.04%	0%
16 seeds, ex. oil & seed grades	0.04%	0.19%	0.05%	0.02%	0.29%	1.85%	1.12%	0.01%	0.09%	0.21%	0.85%	2.74%	0%
17 nursery stock	0.01%	0.01%	0.01%	0.03%	.00%	0.03%	2.14%	1.07%	45.25%	0.04%	0.95%	2.13%	2%
18 oil seeds, nuts & kernels	0.26%	0.87%	0.74%	0.26%	2.30%	20.04%	0.25%	0.75%	0.12%	2.41%	2.59%	3.78%	4%
19 hops inc. lupulin	.00%	.00%	.00%	.00%	.00%	.00%	0.03%	0.01%	0.59%	.00%	0.01%	0.03%	0%
20 tobacco raw	0.11%	0.29%	0.36%	0.12%	0.20%	1.56%	25.38%	0.34%	5.35%	0.37%	15.43%	1.42%	2%
21 mink skins	0.03%	0.15%	0.02%	0.01%	0.02%	0.05%	0.01%	0.03%	6.45%	0.27%	0.01%	0.09%	0%
22 wool in grease	.00%	0.01%	.00%	.00%	.00%	0.01%	.00%	.00%	0.15%	0.05%	.00%	0.01%	0%
23 serv. incidental to agr&for.	1.15%	2.96%	1.18%	0.76%	1.12%	2.67%	1.07%	2.40%	4.06%	1.30%	0.94%	3.51%	2%
24 logs & bolts	0.19%	0.26%	0.06%	0.03%	0.03%	0.11%	0.09%	0.12%	0.18%	0.10%	0.07%	0.17%	0%
25 poles, pit props	0.04%	0.06%	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	0.04%	0.02%	0.01%	0.04%	0%
26 pulpwood	0.19%	0.25%	0.05%	0.03%	0.03%	0.11%	0.09%	0.12%	0.17%	0.09%	0.06%	0.16%	0%
27 other crude wood material	0.67%	0.88%	0.19%	0.10%	0.11%	0.39%	0.32%	0.42%	0.61%	0.33%	0.23%	0.57%	0%
52 beef,veal,pork, fresh&frozen	0.47%	1.99%	1.72%	0.08%	0.13%	0.33%	0.04%	0.03%	0.03%	1.03%	0.35%	0.72%	1%
62 hides & skins, raw, nes	0.02%	0.11%	.00%	.00%	0.01%	0.02%	.00%	.00%	.00%	0.03%	0.01%	0.03%	0%
63 animal mat. for drugs	0.01%	0.04%	0.01%	.00%	0.01%	0.01%	.00%	0.01%	1.84%	0.08%	.00%	0.03%	0%
65 poultry,fresh,frozen	0.01%	0.02%	0.04%	2.46%	0.01%	0.02%	.00%	.00%	0.01%	0.20%	0.01%	0.05%	0%
107 maple sugar&syrop	0.59%	0.13%	0.16%	0.04%	.00%	0.02%	0.02%	0.20%	2.23%	0.18%	0.04%	0.46%	0%
559 other rent	0.09%	0.24%	0.05%	0.05%	0.15%	0.21%	0.14%	0.32%	0.27%	0.07%	0.07%	0.22%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table A-4.4
DISTRIBUTION OF IMPUTED FARM SALES BY FARM TYPE (61991)

CANADA:	Dairy	Cattle	Hogs	Poultry	Wheat	Small Grains	Other field Crops	Fruit & Veget.	Misc. Special.	Livestock comb. farms	Crop comb. farms	Other comb. farms	TOTAL
Number of farms	41905	60139	12301	5438	55789	52086	7722	10269	11640	9054	586	4684	271604
Total sales													
Sales wheat	1.64%	5.81%	0.95%	0.37%	65.21%	21.14%	0.55%	0.13%	0.07%	2.80%	0.19%	1.15%	100.00%
Sales oats-grain	7.81%	22.51%	0.31%	0.06%	14.18%	44.49%	1.85%	0.49%	0.84%	4.94%	0.31%	2.22%	100.00%
Sales barley-grain	2.50%	9.92%	0.44%	0.05%	21.11%	60.56%	1.08%	0.14%	0.18%	2.51%	0.23%	1.27%	100.00%
Sales mixed grain	25.59%	28.77%	1.99%	0.11%	2.12%	29.06%	1.84%	0.40%	0.79%	7.03%	0.38%	1.91%	100.00%
Sales corn-grain	10.70%	8.25%	1.98%	0.33%	0.26%	68.23%	2.49%	1.75%	0.30%	2.92%	0.93%	1.86%	100.00%
Sales other-grain	2.39%	12.60%	0.92%	0.18%	24.87%	44.28%	8.55%	0.39%	0.35%	3.64%	0.36%	1.47%	100.00%
Sales oilseeds	1.11%	3.47%	1.38%	0.42%	13.14%	75.80%	0.30%	0.53%	0.10%	2.38%	0.29%	1.09%	100.00%
Sales hay & fodder crops	24.00%	45.57%	1.05%	0.56%	6.17%	14.02%	2.67%	0.15%	1.15%	3.28%	0.14%	1.24%	100.00%
Sales forage seeds	1.42%	6.27%	0.75%	0.32%	13.59%	57.08%	10.93%	0.08%	0.63%	1.72%	0.78%	6.44%	100.00%
Sales potatoes	2.84%	1.71%	0.80%	0.40%	0.07%	0.89%	79.42%	3.98%	0.21%	2.86%	4.76%	2.06%	100.00%
Sales other field crops	0.97%	2.46%	1.43%	0.40%	2.49%	12.54%	64.54%	0.51%	9.33%	0.78%	3.68%	0.87%	100.00%
Sales apple trees	2.02%	1.94%	0.95%	1.46%	0.04%	0.90%	0.32%	88.30%	1.33%	1.19%	0.14%	1.42%	100.00%
Sales other fruits	1.10%	0.99%	0.87%	1.78%	0.05%	0.82%	0.84%	88.96%	2.17%	0.63%	0.22%	1.56%	100.00%
Sales vegetables	2.01%	1.55%	1.11%	0.61%	0.12%	7.54%	3.89%	71.80%	3.17%	0.75%	2.19%	5.28%	100.00%
Sales specialty crops	0.08%	0.11%	0.06%	0.12%	0.05%	0.23%	6.17%	1.81%	89.52%	0.11%	0.26%	1.48%	100.00%
Sales milk cows	92.90%	0.97%	0.95%	0.41%	0.37%	0.79%	0.07%	0.02%	0.03%	3.13%	0.04%	0.32%	100.00%
Sales other cattle	14.79%	62.27%	1.27%	0.50%	5.76%	8.65%	0.32%	0.11%	0.16%	4.55%	0.23%	1.37%	100.00%
Sales pigs	4.10%	5.80%	71.59%	1.71%	1.11%	3.63%	0.20%	0.09%	0.06%	10.65%	0.24%	0.83%	100.00%
Sales sheep	5.52%	17.77%	2.56%	0.93%	2.48%	7.77%	0.16%	0.61%	43.82%	16.70%	0.15%	1.53%	100.00%
Sales other livestock	1.66%	8.80%	0.63%	0.28%	1.58%	2.89%	0.10%	0.27%	79.41%	3.96%	0.02%	0.39%	100.00%
Sales laying hens	2.00%	2.75%	1.74%	80.43%	1.19%	2.03%	0.05%	0.26%	0.16%	8.78%	0.06%	0.54%	100.00%
Sales other chickens	1.37%	2.16%	1.73%	86.98%	1.57%	1.67%	0.10%	0.07%	0.11%	3.83%	0.04%	0.38%	100.00%
Sales other poultry	0.63%	1.68%	1.19%	88.29%	0.62%	0.89%	0.03%	0.09%	0.17%	6.15%	0.03%	0.23%	100.00%
Sales maple tappings	43.85%	8.94%	4.99%	1.01%	0.18%	1.52%	0.47%	2.44%	31.22%	3.06%	0.09%	2.24%	100.00%
Sale Combinations:													
Souds+Oth.Fd.Cr+Veg.	1.64%	2.05%	1.21%	0.46%	1.34%	8.75%	51.15%	20.62%	5.75%	1.20%	3.50%	2.32%	100.00%
Hogs+Oth.Cattle	12.06%	47.85%	19.23%	0.81%	4.59%	7.37%	0.29%	0.11%	0.13%	6.10%	0.23%	1.23%	100.00%
Oth.Chick.+Oth.Poult	1.16%	2.03%	1.57%	87.35%	1.30%	1.45%	0.08%	0.08%	0.13%	4.49%	0.04%	0.34%	100.00%
Barley,Oats,Rye,Corn	3.24%	7.65%	0.97%	0.30%	48.75%	33.09%	1.05%	0.32%	0.15%	2.92%	0.28%	1.29%	100.00%
Apple Trees+Oth.Fruits	1.52%	1.42%	0.90%	1.63%	0.04%	0.85%	0.60%	88.66%	1.79%	0.88%	0.18%	1.50%	100.00%
Non-Farm Self-Employ.Income	10.95%	26.09%	4.84%	2.67%	14.12%	22.22%	2.80%	3.72%	7.31%	2.83%	0.23%	2.22%	100.00%
Farm Woodland Area	26.88%	33.03%	3.35%	1.42%	5.82%	13.70%	3.53%	2.78%	4.65%	3.07%	0.24%	1.53%	100.00%
Investment Income(Oth.Rent)	9.81%	24.61%	2.48%	2.09%	21.80%	19.97%	4.34%	5.67%	5.72%	1.75%	0.21%	1.57%	100.00%
All Three Poultry	1.51%	2.32%	1.64%	84.51%	1.25%	1.69%	0.07%	0.15%	0.14%	6.25%	0.05%	0.42%	100.00%
Oth.Fruits+Fruit Trees	1.52%	1.42%	0.90%	1.63%	0.04%	0.85%	0.60%	88.66%	1.79%	0.88%	0.18%	1.50%	100.00%

Table A-4.5

FARM WOODLAND AREA BY FARM TYPE, CANADA 1981

Farm Type	Woodlot Area (acres)	Distribn. %
Dairy	2,017,700	26.88%
Cattle	2,479,163	33.03%
Hogs	251,783	3.35%
Poultry	106,378	1.42%
Wheat	436,838	5.82%
Sm. Grains	1,028,715	13.70%
Field Crops	264,973	3.53%
Fruit & Veget.	208,736	2.78%
Misc.Specialty	348,948	4.65%
Livestk.Comb.	230,542	3.07%
Field Crop Comb.	18,102	0.24%
Other Comb.	114,681	1.53%
TOTAL	7,506,559	100.00%

Source: Statistics Canada, 1981 Census of Agriculture, Table 30., Ottawa, September 1982.

Table A-5.1

IMPACT ON OUTPUT, INCOME AND EMPLOYMENT BY INDUSTRY
LARGE LEVEL OF AGGREGATION

Large Industry Aggregation		Output	Income	Employ
1 Dairy	1	1739452.5	1059082.3	50
2 Cattle & Calves	2	6001516.0	2868610.8	179
3 Hogs	3	934413.4	462109.9	15
4 Poultry	4	364773.1	177255.5	4
5 Wheat	5	57036296.0	41409540.0	1125
6 Sm.Grains	6	19047116.0	7111014.5	526
7 Field Crops	7	550533.1	343457.6	15
8 Fruit&Veget.	8	155663.6	101872.5	9
9 Misc.Spec.	9	124522.6	71657.3	7
10 Livstk.Combin.	10	2538752.0	1372392.8	51
11 Fld.Crop Comb.	11	173712.0	79530.8	4
12 Oth.Comb.	12	1051978.0	411859.3	40
13 Forestry	13	221562.6	98434.7	3
14 Fishing,Hunt,Trap	14	18355.2	12599.4	1
15 Gold Mines	15	1410.3	966.3	0
16 Uranium Mines	16	17784.6	10803.1	0
17 Iron Mines	17	22291.0	9221.8	0
18 Base Metal & Oth.Metal Mi	18	127332.3	70794.1	1
19 Coal Mines	19	32644.5	16644.4	0
20 Petroleum & Gas Wells	20	3395423.5	1829524.9	6
21 Asbestos Mines	21	1651.5	985.9	0
22 Gypsum Mines	22	1405.5	759.0	0
23 Salt Mines	23	30223.6	19004.2	0
24 Oth. Non-Metal Mines	24	788131.8	447467.4	5
25 Quarries & Sand Pits	25	51771.7	25577.7	1
26 Serv. Incidental to Minin	26	114498.7	63331.3	1
27 Slaughtering & Meat Proce	27	272673.0	37638.4	1
28 Poultry Processors	28	12867.2	2552.8	0
29 Dairy Factories	29	90600.2	17670.8	0
30 Fish Products Industry	30	43342.2	14226.3	1
31 Fruit & Vegetable Process	31	29391.8	8348.8	0
32 Feed Mfgrs.	32	2885996.8	405544.9	11
33 Flour & Breakfast Cereals	33	114691.8	24328.6	1
34 Biscuit Mfgrs.	34	13758.7	5992.7	0
35 Bakeries	35	19212.9	8886.5	0
36 Confectionery Mfgrs.	36	11713.6	4400.6	0
37 Sugar Refineries	37	32046.6	4330.6	0
38 Vegetable Oil Mills	38	391562.3	49398.5	1
39 Miscellaneous Food Indust	39	108509.5	34932.1	1
40 Soft Drink Mfgrs.	40	39551.5	15272.1	0
41 Distilleries	41	24639.9	9662.1	0
42 Breweries	42	11548.0	5982.3	0
43 Wineries	43	1070.1	325.7	0
44 Leaf Tobacco Processing	44	2484.2	27.1	0
45 Tobacco Products Mfgrs.	45	2327.3	1039.4	0
46 Rubber Footwear Mfgrs.	46	429.5	194.3	0
47 Other Rubber Industries	47,48	317700.8	121508.7	4
48 Plastic Fabricators,NES	49	225495.2	85269.8	3
49 Leather Tanneries	50	2469.1	682.7	0
50 Shoe Factories	51	6369.6	2620.2	0

Table A-5.1 (continued)

IMPACT ON OUTPUT, INCOME AND EMPLOYMENT BY INDUSTRY
LARGE LEVEL OF AGGREGATION

Large Industry Aggregation		Output	Income	Employ
51 Leather Glove Factories	52	1361.4	697.3	0
52 Small Leather Goods Mfgrs	53	7807.3	3366.7	0
53 Cotton Yarn & Cloth Mills	54	19398.7	5979.9	0
54 Wool, Yarn & Cloth Mills	55	8718.2	4153.0	0
55 Synthetic Textile Mills	56	51213.5	17599.1	1
56 Fibre Preparing Mills	57	446.7	63.8	0
57 Thread Mills	58	2267.3	837.2	0
58 Cordage & Twine Industry	59	28800.7	10473.0	0
59 Narrow Fabric Mills	60	3349.8	1435.7	0
60 Pressed & Punched Felt Mi	61	1275.9	441.6	0
61 Carpet,Mat & Rug Industry	62	17139.6	4316.6	0
62 Textile Dyeing & Finishin	63	2316.0	1017.2	0
63 Canvas Products Industry	64	7210.6	2981.3	0
64 Cotton & Jute Bag Industr	65	23309.0	6015.2	0
65 Miscellaneous Textile Ind	66	28962.4	12388.6	0
66 Hosiery Mills	67	259.3	104.7	0
67 Other Knitting Mills	68	4067.0	1500.2	0
68 Clothing Industries	69	40050.0	17375.5	1
69 Sawmills	70	81669.0	25938.9	1
70 Veneer & Plywood Mills	71	35449.3	12582.8	0
71 Sash & Door & Planing Mil	72	62846.4	26823.0	1
72 Wooden Box Factories	73	38295.7	14985.3	1
73 Coffin & Casket Industry	74	255.7	120.4	0
74 Miscellaneous Wood Indust	75	15937.4	5997.3	0
75 Household Furniture Indus	76	5671.4	2437.9	0
76 Office Furniture Industry	77	2060.5	965.6	0
77 Other Furniture Industrie	78	6845.4	2948.5	0
78 Electric Lamp & Shade Ind	79	1248.8	474.9	0
79 Pulp & Paper Industry	80	274585.9	112758.6	2
80 Asphalt & Related Product	81	16911.6	5160.5	0
81 Paper Box & Bag Mfgrs.	82	197757.8	59481.2	2
82 Other Paper Converters	83	145731.9	46852.5	2
83 Printing & Publishing	84	519912.8	262266.6	8
84 Engraving, Stereotyping I	85	35374.4	22477.5	1
85 Iron & Steel Ind.	86	338578.4	115292.6	3
86 Steel Pipe & Tube Mills	87	19512.7	4634.8	0
87 Iron Foundries	88	18188.4	8181.4	0
88 Smelting & Refining	89,90	342329.0	41731.4	2
89 Aluminum Rolling & Extrud	91	57433.3	11998.7	0
90 Copper & Alloy Rolling	92	33060.3	6423.8	0
91 Metal Casting & Extruding	93	32899.0	10465.3	0
92 Boiler & Plate Works	94	42763.1	17136.1	1
93 Fabricated Struct. Metal	95	36685.7	17947.3	0
94 Ornamental & Arch. Metal	96	47288.4	19335.2	1
95 Metal Stamp. Press. & Coa	97	220746.0	70664.4	2
96 Wire & Wire Products Mfgr	98	356542.6	130909.0	4
97 Hardware Tool & Cutlery M	99	64050.2	34594.3	1
98 Heating Equipment Mfgrs.	100	16660.7	6497.7	0
99 Machine Shops	101	43077.9	24615.9	1
100 Misc. Metal Fabricating I	102	93291.6	38438.0	1

Table A-5.1 (continued)

IMPACT ON OUTPUT, INCOME AND EMPLOYMENT BY INDUSTRY
LARGE LEVEL OF AGGREGATION

Large Industry Aggregation		Output	Income	Employ
101 Agricultural Implement In	103	197685.1	75621.8	2
102 Misc. Machinery & Equip.	104	319092.3	138947.6	4
103 Comm. Regrig. & Air Cond.	105	19719.4	6987.7	0
104 Office & Store Machinery	106	58463.6	22675.5	1
105 Aircraft & Parts Mfgrs.	107	46139.7	25187.9	1
106 Motor Vehicle Mfgrs.	108	161874.4	14099.2	1
107 Truck Body & Trailer Mfgr	109	22360.4	7215.1	0
108 Motor Vehicle Pts. & Acce	110	108377.7	45067.0	1
109 Railroad Rolling Stock In	111	66113.1	27923.6	1
110 Shipbuilding & Repair	112	80156.8	39318.1	1
111 Misc. Transp. Equip. Ind.	113	6960.1	2489.7	0
112 Small Electrical Applianc	114	35035.3	16942.0	0
113 Major Appliances, Elect.	115	18524.4	6979.6	0
114 Radio & Television Receiv	116	10264.2	2738.6	0
115 Communications Equipment	117	92771.4	52331.8	1
116 Mfgrs. of Elect. Ind. Equ	118	75891.3	34553.1	1
117 Battery Mfgrs.	119	43710.5	17973.1	0
118 Mfgrs. of Electric Wire &	120	84923.2	23568.7	1
119 Mfgrs. of Misc. Elect. Pr	121	106280.4	47178.1	2
120 Cement Mfgrs.	122	28186.0	12496.5	0
121 Lime Mfgrs.	123	70358.1	24863.4	1
122 Concrete Products Mfgrs.	124	26636.7	12831.1	0
123 Readymix Concrete Mfgrs.	125	40941.9	12904.0	0
124 Clay Products Mfgrs.	126	8358.5	4257.4	0
125 Refractories Mfgrs.	127	5953.2	1740.2	0
126 Stone Products Mfgrs.	128	1695.6	897.7	0
127 Other Non-Metallic Produc	129	49342.4	20191.4	1
128 Glass & Glass Products Mf	130	27700.2	13337.1	0
129 Abrasives Mfgrs.	131	17846.1	6027.0	0
130 Petroleum Refineries	132	7047188.0	253184.2	7
131 Oth. Petroleum & Coal Pro	133	10307.8	2521.3	0
132 Mfgrs. of Mixed Fertilize	134	172823.4	32814.6	1
133 Mfgrs of Plast. & Synth.	135	226689.9	38023.5	1
134 Mfgrs. of Pharm. & Medici	136	170944.8	74115.9	2
135 Paint & Varnish Mfgrs.	137	126197.3	40668.2	1
136 Mfgrs of Soap & Cleaning	138	74269.4	24710.1	1
137 Mfgrs. of Toilet Preparat	139	26778.7	12739.8	0
138 Mfgrs of Industrial Chemi	140	3136475.8	872758.4	13
139 Oth. Chemical Industries	141	1540291.6	574593.8	13
140 Scient. & Prof. Equip. Mf	142	60825.7	25029.1	1
141 Jewelry & Silverware Mfgr	143	6031.8	1510.1	0
142 Broom, Brush, & Mop Indus	144	10169.7	4175.0	0
143 Sporting Goods & Toy Indu	145	20912.4	8603.2	0
144 Linoleum & Coated Fabrics	146	14374.7	4753.8	0
145 Signs & Display Ind.	147	30211.2	18019.2	1
146 Misc. Mfgring. Ind., NES	148	27300.1	12344.4	0
147 Repair Construction	149	2151268.8	865933.5	28
148 Residential Construction	150	0.0	0.0	0
149 Non-Residential Construct	151	0.0	0.0	0
150 Road, Highway, Airstrip C	152	0.0	0.0	0

Table A-5.1 (continued)

IMPACT ON OUTPUT, INCOME AND EMPLOYMENT BY INDUSTRY
LARGE LEVEL OF AGGREGATION

Large Industry Aggregation		Output	Income	Employ
151 Gas & Oil Refinery Constr	153	0.0	0.0	0
152 Dams & Irrigation Project	154	0.0	0.0	0
153 Railway, Telephone, Teleg	155	0.0	0.0	0
154 Oth. Engineering Constr.	156	0.0	0.0	0
155 Construction, Oth. Activi	157	107221.5	57757.4	0
156 Air Transport	158	375702.3	169425.3	3
157 Services Incidental to Tr	159	453789.2	225157.3	9
158 Water Transport	160	1294731.0	571177.4	16
159 Railway Transport	161	2698915.5	1485423.3	43
160 Truck Transport	162	4397450.5	2173308.0	82
161 Bus Transp., Interurban &	163	6077.4	3142.7	0
162 Urban Transit Systems	164	2891.5	3035.6	0
163 Taxicab Operations	165	53384.3	33192.7	3
164 Pipeline Transport	166	338463.6	212045.6	1
165 Highway & Bridge Maintena	167	11230.5	6231.6	0
166 Storage	168	4070566.8	2669466.0	86
167 Radio & Tel. Broadcasting	169	129953.4	101419.5	2
168 Communication Industries,	170	895066.8	717859.4	13
169 Post Office	171	160986.8	112074.1	7
170 Electric Power	172	1292268.3	977229.4	10
171 Gas Distribution	173	85100.8	71097.9	1
172 Water & Other Utilities	174	27740.9	14278.4	0
173 Wholesale Trade	175	6445086.0	4381030.0	138
174 Retail Trade	176	1645202.8	1126137.9	78
175 Owner Occupied Dwellings	177	0.0	0.0	0
176 Govt. Royalties on Nat.Re	178	1039581.8	1039581.8	0
177 Banks & Credit Unions	179	744324.9	527484.3	22
178 Insurance	180	463864.0	157818.6	8
179 Oth. Fin.,Ins. & Real Est	181	4284576.5	2484310.8	40
180 Education & Related Servi	182	0.0	0.0	0
181 Hospitals	183	0.0	0.0	0
182 Health Services	184	4881.7	3839.0	0
183 Motion Picture Theatres	185	30077.6	11172.7	1
184 Other Recreational Servic	186	16259.7	10208.2	0
185 Prof. Services to Busines	187	498037.6	381298.2	23
186 Advertising Services	188	82073.0	49099.1	3
187 Laundries & Cleaners	189	20666.5	13233.6	1
188 Accomodation & Food Servi	190	252924.8	139563.0	9
189 Other Personal Services	191	2636.0	1796.6	0
190 Photography	192	10027.2	4307.1	0
191 Misc. Repair & Maintenanc	193	143815.5	112042.3	9
192 Misc. Services to Bus. &	194	870351.6	610742.8	22
193 Operating Supplies	195	3041828.5	0.0	0
194 Office Supplies	196	374552.9	0.0	0
195 Cafeteria Equip.	197	49839.9	0.0	0
196 Transportation Margins	198	6771031.5	0.0	0
197 Laboratory Supplies	199	56609.7	0.0	0
198 Travel & Entertainment	200	653153.8	0.0	0
199 Advertising & Promotion	201	563655.3	0.0	0
200 Machinery Repair Services	202	1473539.3	0.0	0
SUM		**165,279,843.0**	**84,428,056.2**	**2831**

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